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ROMANIAN SOCIETY FOR SURGERY OF THE HAND**

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UNUSUAL MELANOMA IN THE HAND - DIAGNOSIS AND TREATMENT - CASE REPORT

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Introduction. Melanoma in the hands represents a possible life-threatening disease mainly because of the delay in diagnosis, considering that it accounts for only 3% of all hand malignancies. When we talk about amelanotic melanoma the prevalence is even much lower.

Materials and method. A 46yo male patient presented in May 2015 with a skin lesion in the hypothenar area of the right hand, affirmatively with a history of about 6 months, treated initially by a dermatologist with topical corticosteroids, then referred to us with suspicion of SCC.

At admission, in June 2015, an incisional biopsy was performed. 4 days later the result was amelanotic melanoma, Breslow 3.8 mm, Clark IV. 2 days later surgery was performed with sentinel lymph node dissection (SLND), large resection (2cm margin), and coverage of the defect. For covering the defect which had exposed the ulnar vessels, ulnar nerve and the insertion of FCU, an ulnar artery perforator flap was raised.

Results.

1 week: SLND result came back negative.

2 weeks: excised specimen result revealed nearest tumor cell at 12 mm in surface, 14 mm in depth.

3 weeks: local take of the flap and the skin graft and the patient started hand therapy.

The patient was referred to an oncologist who considered no other adjuvant therapy.

5 weeks: completely healed, normal joint movement, no vascular or ulnar nerve deficiency.

Conclusions.

-diagnosis of an amelanotic melanoma in hand can be difficult, every questionable lesion needs biopsy.

-a perforator flap provides very good and stable coverage of a post excisional defect without the complications usually seen with other flaps (ulnar, radial or free flaps).

Keywords: amelanotic melanoma, perforator flap, ulnar.

NERVE REPAIR USING VEIN/MUSCLE FREE COMPOSITE GRAFT IN THE UPPER EXTREMITY

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Introduction. Over the years a lot of methods have emerged for repairing nerves in the extremities. No one can dispute that direct suture and nerve grafting are the best so far, but the indication is debatable when considering defects in digital nerves (recent or delayed) or in wrist nerves with 6-12 months old injuries. The question is: do we harvest a nerve graft (even sural) for a lesion repair that is most likely prone to failure? One answer may be using a vein graft filled with skeletal muscle.

Materials and method. In my experience I only had 3 such patients: 2 with digital nerve lesions and one with ulnar nerve lesion at the wrist between 2.5 and 8 months since original trauma.

All 3 patients were offered nerve grafting procedures with sural nerve which they refused, therefore a composite vein/skeletal muscle was used to bridge the defect.

Results. At 1 month all patients were pain free, skin healed well.

At 6 months the first 2 patients with digital injuries had S3 and S3+ BMRC grading in sensitivity with no pain. The 3rd patient is yet to be evaluated at the time of this writing.

Conclusions.

-in case of old nerve injuries in forearm (6-12 months), digital nerve injuries or in cases where there is no patient consent for harvesting of a nerve graft, using a composite vein/skeletal muscle graft for bridging small defects might be an option to consider.

-the results regarding regain of sensitivity in fingers using vein/muscle graft (S3,S3+) are probably less favorable than nerve grafting and for sure than direct suture where most patients have S4 recovery.

Keywords: nerve repair, vein/muscle graft.

COMPOSITE GRAFT RECONSTRUCTION OF FINGERTIP AMPUTATION IN CHILDREN: TECHNICAL REFINEMENTS

N. ALSEBAIY

Background. Children always have all the curiosity in the world to explore anything without calculated risk assessment as –we as adults do-While the hand is that tool to do so, broad spectrum of injuries can be found. Here, we are more concerned with fingertip injury.

Fingertip injury is defined as the segment distal to the insertion of the flexor and extensor tendons on the distal phalanx. The primary goal of treatment of an injury to the fingertip is a painless fingertip with durable and sensate skin (Fassler, 1996). With nail bed damage accounting for 15% to 24% of fingertip injuries.

Composite graft is referred as non microvascular reattachment of the amputated part of soft tissue “skin & fat”.

The maintenance of the soft tissue-to-bone ratio to regain fingertip form and function is important during its reconstruction. (Murai, Lau, Pereira, & Pho, 1997)

Objectives. To find the best refinements of all available surgical & conservative techniques in treating fingertip injuries in pediatric group <16 years. As circumferential de-epithelization of distal end of injured finger and shaping graft into cap, keeping 2 mm remnant of germinal matrix. Using of PGE1, hyperbaric Oxygen or different patterns of cooling of reattached graft.

Methods. We conducted a literature review using the search engines MEDLINE, PubMed, Web of Science, and Google Scholar on composite grafts for traumatic distal fingertip amputations occurring at or distal to the lunula. The mechanisms of injury vary between crush/avulsion, sharp amputations or bite.

Results. The appearance and function of fingers were satisfactory via composite graft repair in pediatric patients with distal guillotine amputations. The objective outcomes included graft viability of no take, partial take, or complete take. Occurrence of infection, need for any revision procedures, time to complete healing, nail growth & nail deformity.

Conclusion. Few adjustments in the composite graft in pediatric distal tip injury can astonishingly increase success rate.

Keywords: composite graft, fingertip amputation, pediatric.

CLINICAL APPLICATIONS OF FREE-STYLE PERFORATOR FLAPS IN THE LOWER LEG

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Introduction. Perforator flaps have great versatility in reconstructing lower leg defects, offering similar tissue for defect coverage with minimal donor site morbidity. Due to a sophisticated perforasome network, free-style flaps give the surgeon an opportunity to experiment in covering problematic defects. The aim of our study was to verify the applicability of such flaps in different type of lesions.

Material and methods. The free-style perforator flap concept was applied in 5 different clinical situations of lower leg defects, including bone exposure with osteitis, fractures and tendon exposure by using: fascio-cutaneous or adipocutaneous insular-advancement flap, propeller flap, perforator-plus transposition flap. Preoperative Doppler was performed in order to identify the existing local perforators and in accordance to the vascular pattern the most suitable flap was designed.

Results. We obtained a suitable coverage for the existing defects with 100% flap survival. Minor complications included transient venous congestion and delayed healing of distal margin in one case. No secondary surgery was necessary.

Conclusion. Our cases included different defect patterns and we were able to provide flap planning in accordance with their individual needs, by using free-style perforator flaps principle. All flaps were successful, provided long-term stable cover both over soft tissue and bone, adequate cosmetic results and full recovery of lower leg function.

MULTIPLE ENCHONDROMAS IN METACARPAL BONES – CASE REPORT

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Introduction. Enchondroma is the most frequent benign hyaline cartilaginous tumor that develops within the medullar cavity of the hand bone. Enchondromas are often asymptomatic because of their slow growth but they can present with various symptoms, such as pain, swelling, deformed hand segment and stiff joint. The purpose of this paper is to bring into discussion a case of multiples distal epiphyseal enchondromas in different metacarpal bones treated by two methods (1).

Material and methods. The main complains of the patient were pain, swelling and deformity of the dorsal aspect of the right hand, extension impairment for the second finger.

The MRI revealed bonny lesion with benign appearance typically for enchondroma in the distal epiphysis of the 2nd, 3rd and 5th metacarpal bones. The interventions were done at an interval of 5 month and two different methods were used. The first method regarded the 2nd metacarpal bone and included curettage of tumor and filling of the cavity with autologous sponge from the right iliac crest. The second method involved tumor needle aspiration of the 3rd metacarpal bone and grafting with bone marrow collected and centrifuged from the left tibia.

Results. The recovery went better with the second technique, because the patient could go home immediately after the surgery. The first technique restricted patient movements because of the moderate pain of the right iliac crest. The follow-up was performed at 1 and 2 week post-surgery, followed by monthly controls. The patient regains complete motion for the 2nd and 3rd finger. The small lesion from the 5th metacarpal bone was left in place.

Conclusions. The goal of the surgery was to remove the tumor completely and prevent bone fracture after curettage. Based on the study made on the cadaver, grafting of the cavity provides better strength compared to simple curettage. Because of this, both of the epiphyseal cavities were graphed by two different methods. The particularity of this case consists of the fact that there is multiple lesions in different stage of development and the treatment must be personalized for each lesion.²

Keywords: enchondroma, multiple lesions, two methods.

IS THERE A ROLE FOR FAT GRAFTING IN NERVE REGENERATION?

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Objective. The aim of the study was to assess the effect of autologous fat graft on nerve regeneration by creating a suitable experimental model.

Methods. The rat sciatic nerve was used, transected and primary neurorrhaphy was used on both hind legs, but on one side a processed fat graft was applied, surrounding the nerve.

Results. For the follow-up we used histological examination, at 4 and 10 weeks. The results showed increased and more organised neural regeneration on the side with the fat graft.

Conclusions. The adipose-derived stem cell has clearly demonstrated her capacity to transdifferentiate, but the specific role played is not clear. We wanted to explore the direct effect of this cell on direct neurorrhaphy. We did not observe a direct differentiation on Schwann like cell, but mostly an antifibrotic and an antiinflammatory effect.

Keywords: nerve regeneration, adipose-derived stem cells.

REHABILITATION FOLLOWING CARPAL TUNNEL RELEASE

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Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy of the upper limb. It results from compression of the median nerve at the wrist, as it runs through a bony and fibrous tunnel, and is characterized by numbness, tingling, pain and weakness in the hand. The prevalence is up to 3% in the adult population, with a peak between the ages of 35 and 44 years, affecting people during their most productive years. CTS is more common in women and in individuals with certain risk factors: diabetes, obesity, arthritis, older age, certain occupations (e.g. computer workers), previous wrist fracture. In many people surgery is indicated, in order to reduce pressure on the nerve, to lessen pain, to improve sensation and hand function.

Postoperative rehabilitation aims to speed up symptom resolution and functional recovery. Unfortunately, there is limited evidence up to now of the effectiveness of postoperative rehabilitation interventions. Various arguments in support of each rehabilitative technique have been reported. Laser therapy, electrical stimulation, decimeter wave therapy, ultrasound, phonophoresis, iontophoresis are intended to stimulate wound healing and neuronal regeneration and / or to control postoperative pain. Immobilization of the wrist with an orthosis could be used, if needed, to minimize postoperative pain, wound dehiscence and to prevent bowstringing of the flexor tendons. Early mobilization of the wrist and digits following surgery favors longitudinal gliding of the median nerve and prevents adhesion formation between the nerve and the flexor tendons. Oedema management techniques are used to diminish effects of the inflammatory response on digital range of motion. Scar management techniques (massage, pressure, silicon-based products) are intended to loosen adhesion between skin and underlying tissues and to promote scar remodeling. Strengthening exercises and progressive functional activities improve occupational performance after surgery.

In order to optimize the results of CTS postoperative rehabilitation, researchers should undertake high-quality trials to assess the effectiveness and safety of various rehabilitation treatments. Better evidence will enable the rehabilitation specialist to select the most appropriate rehabilitation techniques for the patient particular conditions and to improve final functional and life-quality outcomes.

OUR EXPERIENCE IN REPLANTATION OF UPPER LIMB SEGMENTS

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Objective. Scientific and technical progress, large-scale use of technology in everyday life, has resulted in increasing of upper limb amputations. The aim of this work is to show our experience and analyse the successes and complications of different replantations in the upper limb.

Material and methods. In this study we took in account all the replantations in upper limb at any level (fingers, hand, wrist, forearm, elbow, arm), performed during 6 years (2009 – 2015), in our clinic. From a total number of 930 amputations in upper limb, only 66 (7.09%) had absolute or relative indications for replantation and have been operated. 43 (65%) was men and 23 (35%) women with a mean age of 43.5 years, 39 (59%) in right limb and 27 (41%) in left limb. Thumb was replanted in 15 (23%) cases, other finger 38 (57.5%) cases, wrist or hand 6 (9%) cases, forearm 5 (7.5%) cases, arm 2 (3%) cases. The mechanism of injury was by cutting in 48 (73%), avulsion 12 (18%) and crushing 6(9%). 12 (18%) patients had concomitant pathologies and 6 (9%) associated trauma. Also, taken into consideration was the time of total ischemia, fixation methods and the number of connected arteries and veins.

Results. Vascular complications were detected in 15 (22.72%) cases. Intraoperative arterial or venous thrombosis in 4 (6%) cases, erosive bleeding in 4 (6%) cases. Total necrosis of replanting parts was developed in 16 (24.24%) of cases in the period of first 11 days after surgery, partial necrosis occurred in 7 (10.6%) cases. Infectious complications occurred in 7 (10.6%) cases. Surgical reinterventions were performed in 16 (24.24%) cases. Overall success rate was 61.6%.

Conclusions. According to the literature the success rate varies from 60 to 80% being closely linked to the technical and material equipment of the replantation centers. The success in replantation is due not only to microsurgical techniques but also to postoperative care and recovery treatments. Always we can improve our results which are modest, by modernizing the equipment and surgical techniques.

Keywords: limb replantation, revascularization, traumatic finger amputation.

FUNCTIONAL RECONSTRUCTION OF THE ELBOW SOFT TISSUE DEFECTS BY PEDICLED PERFORATOR FLAPS

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Background. Soft tissue defects around the elbow deserve a special attention because, despite their variable etiology and localization dorsal or volar, all of them have potentially disabling effects. The particular anatomical structure of the elbow region with thin, mobile soft tissue envelope, containing all major vessels and nerves for the distal upper limb and also bones and elbow joint, makes the reconstruction surgery challenging. This paper will present the usefulness of local perforator flaps for elbow reconstruction both from anatomical and functional point of view.

Material and method. The paper presents our plastic surgery department experience in covering posttraumatic and postexcisional soft tissue defects around the elbow region, with or without other associated injuries by local and regional perforator flaps. The flaps are harvested as microsurgical non microvascular flaps, based on musculocutaneous or septocutaneous perforators from the proximal forearm or distal arm. This method of reconstruction allows stable and durable coverage of the soft tissue defect, in less time as conventional flaps, with less costs, having a good aesthetic and a very good functional outcome.

Results. Flap survival rate is 100%, the venous congestion being a common finding first days after surgery but with spontaneous resolution in most of the cases. Early active mobilization is possible starting with the first day after surgery especially for the flaps harvested from proximal forearm.

Conclusion. Durability, early- motion and the ease of patient recovery are important considerations for elbow wound coverage. The use of local and regional perforator flaps is a major advancement in reconstructive surgery, replacing „like with like”, allowing thinner, safe flaps to be tailored for more accurate reconstruction with early recovery of full range of motion influencing both the ability to work and general quality of life.

Keywords: elbow, soft tissue defects, perforator flaps, early rehabilitation.

ULTRASOUND DOPPLER MAPPING OF PERFORATOR VESSELS FOR ELBOW SOFT TISSUE RECONSTRUCTION

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Background. Local and regional perforator flaps for elbow reconstruction are recognized as a viable solution providing easy, long lasting good quality reconstruction, low donor area morbidity, early rehabilitation and good cosmetic result. Despite their well known advantages, there are still debates regarding preoperative planning especially from the perspective of anatomical variability of perforator vessels. Creating maps based on predictability of perforator vessels in one region could decrease surgical time and improve surgical results. The identification of perforator vessels by the use of continuous hand held Doppler is incomplete and associated with an important number of false positive or negative results, especially for the upper limb. Color Doppler Ultrasound is a simple, not expensive, non invasive, readily available method of perforator vessel identification, with a good sensitivity and sensibility.

Material and method. Color Doppler Ultrasound was used to identify perforator vessels able to support local and regional flaps for elbow reconstruction. Ten healthy volunteers were included in study, 20 upper limbs were scanned in 2 perpendicular directions with ~ 3 mm/second scanning speed, by the use of a Doppler US Machine with variable frequency 9-14 MHz, using a linear high resolution transducer. Arteries passing through the deep fascia from deep source artery to the skin were identified as perforator arteries. The assessment of perforator vessel followed 4 main directions: localization, number, type and caliber. The target regions scanned for perforators able to support flaps for elbow reconstruction were the distal half of the arm and the proximal half of the forearm, volar and dorsal. Each target region was divided in 4 quadrants, creating a rectangular (two –dimensional) Cartesian system (OX axis being the line between the medial and lateral epicondyle and OY axis being the perpendicular on the middle of the distance between the two epicondyles). The identified perforator vessels in each limb were marked and noted as an ordered pair (x,y). Twenty individual maps for volar regions and 20 individual maps for dorsal regions were completed. The individual maps were superposed, with identification of clusters of perforators. A k – means cluster algorithm was then used, the aim being to partition n observation in k clusters in which each observation belongs to the cluster with the nearest mean, serving as a prototype of the cluster.

Results. 395 perforator vessels were identified in 20 scanned limbs (mean 19.75 perforator/limb), most of them in dorsal forearm (39.01%), 218 as septo-cutaneous perforators and 177 musculo-cutaneous, in 51 cases the caliber of vessel identified by Doppler US being larger than 1 mm. By the use of the K-mean algorithm, five main clusters of perforators were identified, 3 volar: V1 (-0.46; 8.15) V2 (0.74; -0.45) V3 (-0.49; -9.81) and 2 dorsal: D1 (0.93; 7.10) D2 (-0.55; -2.63)

Conclusion. On the target regions at least one perforator able to sustain flaps for elbow soft tissue reconstruction is identified. The described maps could be considered valuable clinical tools for planning the flaps. The mapping of perforator vessels by Color Doppler Ultrasonography could be a useful investigation prior surgery, but local perforator flaps are and will remain microsurgical non micro-vascular flaps in which intraoperative perforator identification is the key of the procedure.

Keywords: elbow, soft tissue defects, Doppler ultrasound, perforator mapping.

VASCULARIZED BONE TRANSFER IN SEVERE SEPTIC FOREARM COMPLICATION: CASE REPORT

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Objective. To describe treatment management of severe septic complication at distal meta diaphyseal forearm level using bone vascularized transfer.

Material and methods. Report of clinical case of a patient, woman, 46 years old, admitted in our clinic with Dx: open fracture of both forearm bones in typical place. Primary survey consisted of orthopedic reduction and percutaneous fixation with k-wires. At 3 weeks post trauma it have developed a local aggressive infection resulting in one month in sequestration of distal meta diaphyseal part of radius, with a 8 cm length and of ulna with a 5 cm length. It was performed sequesterectomy and radial defect's reconstruction with free fibula flap.

Results. Even if the surgery was performed in presence of local aggressive infection, it was a good evolution, with primary regeneration and consolidation of bone flap after 3 months. In the rehabilitation period patient achieved full functional restoration, without reconstruction of ulna.

Conclusions. Vascularized transplant withstands septic lesions in contaminated outbreak and itself contributes to its liquidation. Restoration in optimal time of skeleton, besides impairment of other component of locomotor system, have determined good functional restoration.

Keywords: vascularized bone transfer, septic defect.

REPLANTATION OF AMPUTATED THUMB: LONG-TERM OUTCOMES ANALYSIS

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Introduction. Thumb's amputations are one of the most common injuries faced in emergency, being a distressful injury with negative effects on one's ability to perform daily task or work. However, replantation is not regularly done due to the presumed complexity of the procedure and possible negative outcomes.

Aim. This study reveals our experience of thumb replantations over a period of 3 years and analysis of long-term outcomes.

Material and methods. Our study included a group of 74 patients with thumb amputations admitted in IEM, 62 underwent replantations over a period of 3 years since the year 2013. Thumb amputations were classified by Tamai's classification. Long-term results were evaluated based on DASH score after a mean follow-up period of 8 months after the initial injury.

Results. Study group was 62 patients, 5 women and 57 men, whom underwent thumb replantation. Mean age was 40.5 years, with age limits 17-80 years. According to Tamai's classification level of amputation: zone I-18, zone II-13, zone III-26, zone V-5 cases. According to lesion type: 27cases of sharp injuries and 35cases of laceration injuries. Fifty-five thumbs survived. The overall success rate was 88.7%; 88% of zone I, 92% of zone II, 88% of zone III and 80% of zone V injuries; overall survival was 92% of sharp injuries, 85% of laceration injuries. Based on DASH score at a mean follow-up period of 8 months was noticed excellent results in 94% and good result in 6% cases, after laceration injuries.

Conclusions. Our study revealed that a high replant survival rate can be achieved using current techniques. Long term outcomes may be worse after crush injuries, requiring a prolonged rehabilitation.

Keywords: replantation, thumb amputation, outcomes.

COMPARISON OF FUNCTIONAL RECOVERY FOLLOWING DIGITAL NERVE REPAIR AND SMOKING STATUS OF THE PATIENT

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Introduction. Exposure to cigarette smoke negatively impacts recovery, as it constricts vessels supplying nutrients to damaged digital nerves and so inhibiting the regeneration process. It was collected data on the digital nerve injuries allowing to evaluate nerve injury epidemiology and outcomes of digital nerve repairs.

Aim. Analysis of patient smoking status and functional recovery following digital nerve repair.

Material and methods. Our study was performed on 2 subgroups: «smokers» defined as subjects reporting a history of smoking and «non-smokers» defined as healthy subjects reporting no history of smoking. We collected data about patients treated in IEM during 2014-2016 year. Were performed demographics and outcomes analysis. Meaningful recovery was defined by MRCC scale at S3 or greater for sensory function. Comparison was made between the subgroups.

Results. During 2014-2016 in IEM were admitted 97 patients with digital nerve injuries and with 119 repairs. There were 63 patients with 78 repairs in «smokers» group and 34 patients with 41 repairs in «non-smokers» group. Mean age of the study group was 40 years, with a mean follow-up duration of a year. Meaningful recovery was observed in 87% of repairs. Based on lesion's mechanism was observed meaningful recovery in 92% of lacerations and 80% of complex injuries. No complications were reported.

Conclusions. Repair of digital nerve injuries resulted in good functional recovery. Based on our data, meaningful recovery was achieved in 87% after repair. A greater and faster recovery was determined in the «non-smokers» group. Outcomes from this suggests that smoking may contribute to decreased and prolonged functional recovery.

Keywords: nerve injuries, digital, repair, smokers.

MANAGEMENT OF THE FOREARM SOFT TISSUE DEFECT WITH UNUSUAL EVOLUTION: A CASE REPORT

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Introduction. Soft tissue defects of the hand are not an uncommon problem for plastic surgeons in emergencies. Due to nature of affected area, functional and aesthetic results represents a challenge for the surgeons, especially in case of unusual recovery evolution.

Clinical case. This work reports a clinical case of a 27 years old male, smoker, admitted in our clinic at 5 days post trauma with massive soft tissue defect on anterior surface of right forearm with injury of the flexor tendons of the 2nd-5th fingers and of the wrist and with lesion of the neurovascular ulnar pedicle and radial artery. It was performed reconstruction with peroneal free flap and tendons repair. On donor area was applied split-thickness skin graft. At 24h postop, we noticed flap oedema, cyanotic aspect, delayed capillary test. At revision of microsurgical anastomosis was determined a trombus in venous anastomosis and hematoma of the forearm, that were evacuated. At 2 weeks was observed marginal necrosis of the flap and phlegmon of the forearm, being performed necrectomy and drainage. Further, was applied combined conservative treatment with negative pressure therapy. Final step patient undergone reconstruction with skin graft. At a 6 months follow-up it was achieved a good functional and aesthetic result.

Conclusion. The successful reconstruction of forearm soft tissue defects remains a challenge for plastic surgeons. However, maximal and early functional and appearance recovery can be achieved only by comprehensive rehabilitation requiring a commitment from the patient and surgeon.

Keywords: tissue defects, forearm, commitment, management.

CLINICAL EVALUATION OF THE SUBCOSTAL ARTERY PERFORATOR FLAP FOR DEFECT COVERAGE IN THE LUMBAR AREA

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Background. Soft tissue defect coverage of the lumbar area is particularly difficult to achieve following extensive tumour resection and/or radiation sequels, especially when combined with exposed osteosynthetic materials. Following a previously published anatomical and radiological study¹, this novel reconstructive technique was applied clinically in 25 consecutively treated patients. This study evaluates the results and the potential for clinical use of this technique.

Methods. Prospective data was acquired from all consecutively treated patients at a university hospital between 1.1.2007 and 31.12.2015. Diagnosis, defect location, perforator position, flap size, duration of the procedure and complications were noted.

Results. All but one flap survived. The surviving flaps showed primary healing with three patients requiring minor revision surgery (one haematoma, one late seroma and one minor tip necrosis). The location of the subcostal artery perforator was found intraoperatively in all patients in the precise location determined by preoperative Doppler sonography, at the lateral border of the latissimus dorsi muscle and between 1 to 4 cm below the 12th rib end. The maximal flap size was 32 cm x 12 cm. The maximal pedicle length was 15.5cm. All donor sites were closed directly. The surgery required a mean of 3.15 hours. All donor sites healed uneventfully.

Conclusion. This first clinical series supports the considerable potential for the clinical use of the subcostal artery perforator flap for defect coverage in the lumbar area, due to its constant and reliable anatomy. Preoperative planning by doppler sonography was helpful in maximizing the size and the detecting the position of the subcostal perforator, thus allowing an optimal flap design with no donor site morbidity.

Keywords: subcostal flap, lumbar defect.

AN UNCOMMON CASE OF A THENAR INTRAMUSCULAR LIPOMA

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Objective. Lipomas are benign mesenchymal tumors of adipose tissue, with a subcutaneous, intramuscular or intermuscular localization. Although the palm contains a considerable amount of adipose tissue, hand lipomas are uncommon and intramuscular hand lipomas are extremely rare.

Material and method. We present the case of a 65 year old woman who was admitted in our department with a slowly growing painless mass in the thenar region of the right hand that appeared 2 years before. The patient noticed some difficulties in gripping objects due to the size of the tumor with no numbness or weakness.

An ultrasound examination revealed a well circumscribed hyperechoic ovoid mass in the thenar muscles.

Surgical treatment was decided and consisted in dissection and excision of a 4 cm tumoral mass.

Results. The result of the histopathological examination was a thinly encapsulated lipoma with no evidence of malignancy. The patient had no neurologic deficit postoperatively and full unrestricted thumb movement was possible.

Conclusions. Even though intramuscular lipomas of thenar eminence are extremely rare these are entirely benign lesions with extremely low frequency of malignant transformation and the treatment of choice is surgical excision. Careful dissection is necessary in order to avoid recurrence and damage of digital nerves and vessels. The main reason for excision is the impairment of hand functionality and the cosmetic appearance.

Keywords: thenar, lipoma, hand.

TOTAL LOWER LIP RECONSTRUCTION USING A DELTOPECTORAL FLAP EVALUATED POSTOPERATIVELY WITH AN INFRARED THERMOGRAPHIC CAMERA

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Objective. Squamous cell carcinoma is the second most common skin cancer after basal cell carcinoma and the most frequent malign tumor of the lower lip, arising most often as a result of cumulative sun damage. Defects larger than one third of the lip need reconstruction using local or distant flaps.

The purpose of this paper is to present the therapeutic management of an extensive lower lip squamous cell carcinoma and the postoperatively evaluation of the flap using an infrared thermographic camera.

Material and method. We describe the case of an 87 year old male patient, with multiple comorbidities, who was admitted in our department with an ulcerated tumoral mass that involved two thirds of the lower lip, the left oral commissure and one third of the upper lip. The treatment consisted in excision of the tumor and reconstruction of the defect using an ipsilateral deltopectoral flap. The flap vascularization was evaluated postoperatively with an infrared thermographic camera and after 4 weeks the pedicle was divided.

Results. The histopathological examination revealed squamous cell carcinoma with perineural invasion, completely resected with safety margins.

Postoperative results were favorable, the lip continence to saliva being preserved with a partially sphincter function. No local or general complications were encountered.

Conclusions. Despite the additional comorbidities, the size and the invasion of the tumour on the lower and upper lip, complete resection was possible with an adequate reconstruction, the postoperative scars being functionally and also cosmetically acceptable.

Infrared thermographic camera might represent a new method of evaluating flap vascularization that could help minimizing ischemic complications in flap surgery.

Keywords: squamous cell carcinoma, lip reconstruction, pedicled flap.

DRUG STIMULATION OF THE PERIPHERAL NERVE REGENERATION. EXPERIMENTAL MICROSURGICAL MODEL IN THE RAT

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We investigated whether administration of Piracetam for 60 consecutive days after sciatic nerve cutting injury in the rat could improve nerve regeneration. Twenty-four Wistar rats were equally divided into two groups: Piracetam (P) group received 400 mg/kg Piracetam intramuscular injections daily for 60 days, while Control (C) received no medication after surgery. Both groups were followed for 9 weeks. Functional, electromyographic and histologic assessments were analyzed. We calculated the Sciatic Function Index (SFI) for each rat of each group twice, at 30 and 63 days after surgery; Mean nerve conduction latency (NL) and Peak amplitude of voltage (PA) were also calculated on the 63rd day and after euthanasia the sciatic nerves of each hind limb were harvested and histomorphometrically analyzed.

We found that sciatic injured rats in P group showed greater functional recovery, a higher mean SFI compared to the Control both 30 and 63 days after injury, however Electromyography and Histomorphometry revealed similar levels of motor innervations between the two groups and no statistically significant differences.

After the results from the walking track analysis performed on the 30th day we can conclude that Piracetam gives better muscle re-innervation than the uninfluenced nerve regeneration. The enhanced regeneration of peripheral nerve induced by Piracetam can represent a promising and valuable therapeutic solution.

FUNCTIONAL OUTCOMES OF HAND FRACTURES USING DIFFERENT TYPES OF IMPLANTS

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Objectives. To compare the differences of using minimally invasive techniques against open surgery of hand fractures and different types of implants. To highlight the importance of hand rehabilitation for a good functional outcome after metacarpal and finger fractures.

Material and methods. We designed a retrospective study involving 48 patients with hand fractures, such as finger fractures or metacarpal fractures. The patients were treated by open reduction and internal fixation (ORIF), closed reduction and internal fixation (CRIF) or external fixation (ExFix). Different bone implants were used such as: Kirschner wires, mini-plates and screws and external fixators.

Results. We obtained bone union in all of the cases and there were no bone infections. Stable fixation of fractures and immediate allowing early mobilization will prevent stiffness and will successfully treat hand fractures.

Conclusions. Usually, conservative treatment is the best solution for the patients but the indication for such treatment should be really precise. Rehabilitation of the hand after surgery is the most important aspect of treatment, because it is necessary in every patient, and because it is no use splinting or operating on a hand if it ends up stiffed.

TRAUMATIC INJURIES OF PERIPHERAL NERVES OF FOREARM: ETIOLOGY AND LESION COMPLEXITY ASPECTS

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Purpose. Identification and examination of etiology and lesional complexity aspects in periferic nerve injuries of forearm, as well as their independent contribution to obtained results after repair.

Materials and methods. A retrospective study of 200 patients surgically treated during the period 2014-2016 in our clinic. From total amount of patients, 81% (162) were men and 19% (38) women. Age limits were between 17 and 83 years. Most frequently was affected ulnar nerve, being injured in 56% cases (112 patients). Lesion of median nerve was in 36.5 % cases (73 patients) and radial nerve - in 7.5% cases (15 patients).

Results. In study group the most frequently lesional mechanisms were by cutting in 78% cases and traction or contusion in 22% cases. Therewith was established that in 96% cases were associated a muscular or tendon injury, in 31.4% cases – open fractures of forearm bones and vascular lesions - in 48.6% cases.

Conclusions. In open injuries of the forearm most frequently is injured ulnar nerve, being often accompanied by damage of tendons and vessels. Complexity of trauma has a negative influence on primary survey, recovery and restoration of work capacities.

Keywords: nerve, injury, forearm.

THE SURGICAL TREATMENT OF THE PATIENTS WITH SCARRING SEQUELAE OF THE HAND

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Purpose. To study the clinical evolution of the burn scars on the hand, of the sequelae and scar stiffness caused by it; to determine the options in the surgical treatment of correction and to establish its efficacy.

Material and methods. It was conducted a descriptive-retrospective study of a group of a 31 patients with scarring sequelae on the hand, wich sufferd surgical treatment of correction. To determine the influence of the scar process on the life quality and the postoperative results it was used the VSS (Vancouver Scar Scale), BSHS-R (Revised Burn –Specific Health Scale), UCLA (end-result score).

Results. It was used the scar excision and local tissue plasty by advancement or transposition in 51.61% (16 patients). On 35.48% (11 patients) the substitution of the defect was perform by autodermoplasty, and on 12.9% (4 patients) it was used a vascularised flap.

Conclusions. The scar sequelae after burn injury limits the function of the upper limb and has an significant influence on the life quality and social integration of the patient and it's surgical correction provide functional recovery of the hand with better aesthetic restoration.

Keywords: burn; scar stiffness; surgical correction.

SURGICAL MANAGEMENT OF CALF TISSUE DEFECTS IN EMERGENCY

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Aim. To present 2 clinical cases of open fractures of both bones of the calf with tissue defect treated ortho-plastic and to analyze final results.

Material and methods. The work describes 2 clinical cases, a 56 years old man and a 83 years old female, admitted in Department of Emergency Medicine with open fractures of both bones of calf Gustilo Anderson IIIB type with tissue defects in medio-distal third of calf, on anterior surface.

Results. In first stage was performed surgical debridement, external fixation of fracture and defect's plasty with internal leg flap on distal pedicle. Donor area was covered with split thickness skin graft in second surgical stage.

Conclusion. Surgical management of open fractures of calf's bones associated with tissue defects needs to be based on following principles: radical surgical debridement, rigid fixation and early reconstruction of the defects.

Keywords: calf, flap, open fracture.

MICROSURGICAL ORGAN TRANSPLANTATION IN SMALL ANIMALS

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Transplantation of various organs has become standard treatment in modern medicine. Despite wide acceptance, there are still a lot of unsolved problems, especially related to rejection and immunosuppressive regimens. Small animals (mice and rats) represent the best animal model for transplantation research due to important general advantages: available in large numbers, low cost, easy maintenance, very resistant, easy anesthesia, well defined experimental models. There are also specific advantages for transplantation immunology with regard to inbred strains and genetically modified (transgenic and knock-out) animals.

The presentation describes the microsurgical technique for different organ transplantation in mice and rats: kidney, liver, heart, small intestine, pancreas, multivisceral and uterus. Various technical key points and experimental and clinical application are also discussed.

Keywords: organ transplantation, experimental microsurgery.

OUR APPROACH IN COMPLEX “SPAGHETTI WRIST” TRAUMA

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Objective. Volar lacerations of the distal forearm are problematic cases for the plastic surgeons. In this anatomical area the noble structures (flexor tendons - zone V, median nerve, radial artery, ulnar artery and ulnar nerve) are situated superficial. Another challenge is the postoperative post functional recovery. A “spaghetti wrist” is considered a trauma evolving several tendons, nerves and vessels.

Methods. A retrospective study for the last 10 years was performed. The etiology of the trauma was mainly due to misuse of industrial machines. 80% of the patients were men. The severity of the lesion was different starting with only tendons laceration to combined tendons, nerves and vessels injury.

Results. Good functional results were achieved in all cases due to both operative technique and rehabilitation. Professional reintegration was possible in all cases.

Conclusions. These complex cases need an excellent teamwork between surgeons and hand therapist. Boast the tendons injuries and nerve injuries may affect hand function and mobility if treated improperly.

Keywords: hand trauma, flexor tendon injury, wrist.

ADVANTAGES OF USING FLOW-THROUGH FLAPS IN TOTAL OR PARTIAL LIMB AMPUTATION

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Objective. Even if not frequent, the complex upper limb trauma that need defect coverage and a revascularization or replantation in the same time are a real challenge for the surgeons. Early reconstruction methods that are based o delayed interventions have limited positive results. We recommend the use of the flow-through flap that can simultaneous offer excellent coverage and also revascularization for the amputated limb.

Methods. Various flaps were used to offer a “like with like” coverage of upper limbs defects in severe cases of devascularization, total or partial amputation. The etiology of the defects was very different, varying from mechanical, to thermal or chemical trauma.

Results. All flaps showed good vascularization. The arterial and venous supply for the amputated or devascularized segment was achieved through a graft from the flow-through flap. Postoperatively the hand therapy was started in order to achieve a functional end result.

Conclusions. The flow-through flap is ideal for use in complex traumatic cases because it is useful for defect coverage, revascularization and functional reconstruction. It also can be used as an “emergency flap”, eliminating the delays caused by the use of more traditional methods.

Keywords: hand amputation, flow-through flap, hand trauma.

MALLET FINGER REPAIR WITH DEEPI THELIALIZED SKIN FLAP

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Introduction. Mallet finger is a deformity created by the injury of the extensor aponeurosis in the fingers. This injuries treatment remains challenging, even if a lot of surgical techniques were described.

Material and method. We included in the study the patients who presented and were operated in the Plastic Surgery Clinic in the Rehabilitation Clinical Hospital Cluj Napoca, starting with 1996, having this type of injury.

The deformity was older than 10 days in all cases. The origin of injury was tendinous in 71% and bony in the rest of cases.

Results. Based on Crawford evaluation criteria, the results were excellent and good, the patients having no pin track infections, no pain and no flap necrosis.

Conclusions. The advantage of this technique is the lower rate of complications and the very good functional outcome.

Keywords: extensor tendon finger, deepithelialised skin flap.

CHOOSING THE FLAP IN UPPER LIMB RECONSTRUCTION

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Introduction. Depending on the type of injury, the location of the defect and the complexity of anatomic structures missing, there are nowadays a lot of possible techniques and tactics available for upper limb reconstruction.

In very complex destruction cases, when there is a need for functional reconstruction or when there are bone defects involved, the surgeon should choose a free simple or composite free flap, as the only possible judicious alternative for reconstruction.

Considering the new advances in reconstructive surgery and the knowledge in the functional anatomy of blood vessels, it is recommended that, whenever possible, the local/regional flaps should be employed, in a perforator manner, rather than in the traditional way.

Material and method. We present the author's experience in reconstructing simple and complex tissue defects in the upper limb, in the Plastic Surgery Clinic in the Rehabilitation Clinical Hospital, Cluj Napoca.

Results. The results were very good considering the severity of the injury, with fast functional rehabilitation and social reinsertion.

Conclusion. For every type of tissue defect, there should be employed a specific algorithm for reconstruction, considering the location and severity of trauma.

Keywords: free flap, local/regional perforator flap, composite flap.

MUSCLE-RIB FLAPS IN THE UPPER LIMB

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Introduction. Depending on the complexity of the defect and the need for a functional reconstruction, there are a lot of possibilities to reconstruct soft tissue and bone defects in the upper limb.

Material and method. The authors present the long term results in a series of cases with posttraumatic bone defects in the upper limb solved with muscle-rib flaps. In these cases we performed serratus anterior-rib flaps, latissimus dorsi-rib flaps and latissimus dorsi-serratus anterior-rib flaps.

Results. The immediate success rate was comparable with the one reported in other studies in literature and a primary bone union rate was of 98.2%.

Conclusion. Even in the advent of using new possibilities of flaps for upper limb reconstruction, we believe that this procedure remains very useful for small and medium bone defects associated with large soft tissue defects.

Keywords: latissimus dorsi rib flap, serratus anterior rib flap, upper limb.

ALT FLAP: A WORKHORSE FLAP IN RECONSTRUCTIVE SURGERY?

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Introduction. The trend in reconstructive surgery evolved as time passed by towards the intensive use of perforator flaps as free or local flaps.

Between the first described and highly flaps used is the anterolateral thigh flap.

Material and method. ALT flap can be used as a local advancement or propeller flap, for defects located in the gluteal region, the inguinal area, the lower abdomen or in the thigh. Also, it can be utilized based on a reverse pedicle, as a possibility to cover knee defects, but it's maximal potential is achieved by using it as a free flap, to cover tissue losses all over the body, but especially for head and neck and limbs' defects.

A very important progress was achieved by discovering the possibility of harvesting the ALT as a thinned, partially defatted flap, feature which can avoid the bulkiness and improve the aesthetic results, especially in the white race.

Results. We present the authors experience with this flaps' use, based on the surgeries performed in the Plastic Surgery Clinic of the Rehabilitation Clinical Hospital Cluj-Napoca.

Conclusion. The ALT flap is a versatile flap, which, in our opinion, can be considered a workhorse in the reconstructive surgery.

Keywords: ALT flap, ALT free flap, ALT local advancement flap, ALT propeller flap.

TACTICAL APPROACH IN MANGLED HAND

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Introduction. Mangled hand is a devastating, invalidating type of trauma, with complex repercussions into the functional future of the patient. The more complex the trauma, the more intricate must be the reconstruction.

Material and method. The first step in the treatment of such cases is the fast recognizing of the lesion extent.

The debridement is essential, and is done removing all clearly necrotic and purulent tissues, but preserving the ones with uncertain viability which possibly may revascularize later.

The characteristics of the traumatic mechanism and the extent of the local injury, the presence or absence of sepsis are factors which command a specific type of surgical protocol, the reconstruction in only one procedure, or in successive ones. It is well established that the early is the reconstruction, the better the following results, the all-in-one treatment being the best approach, in selected cases. If the local or general condition do not permit that, it is better to delay the reconstruction for 24-48 hours, but never after more than 72 hours. After that time, the tissues will be more fibrotic, granulated and/or infected.

Results. The prognosis of such injuries is always dependent on the severity of the trauma, the time elapsed since the trauma to the presentation in the plastic surgery ward and the possibilities of treatment.

Conclusion. Whenever the local/general conditions allow it, it is better to do an as early reconstruction as possible, employing bone reconstruction and soft tissues coverage using local/ regional or free flaps.

Keywords: debridement, all-in-one reconstruction, free flaps, local flaps.

WHERE, HOW AND WHEN LOCAL/REGIONAL PERFORATOR FLAPS

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Introduction. Nowadays there are known and described more than 400 perforators all over the body, which can be used to vascularize perforator flaps.

Material and method. The requirements of a good quality reconstruction are employing similar tissues, having a minimal donor area, in the best case scenario with primary closure, no major blood vessels sacrifice, and the possibility to start very early the rehabilitation regimen. The donor site is of paramount importance especially in the exposed areas (face, neck, hands).

Whenever the injuries are not very extensive or complex, we consider that is beneficial to use the local/regional perforator flaps, as advancement or propeller flaps, which allow minimal damages and a good aesthetic and functional aspect. We will describe the harvesting technique and the tactical points in this study.

Results and conclusions. In our hands, the local/regional perforator flaps have a good integration rate, with limited local donor site damages, and in the few cases in which we encountered complications (such as superficial necrosis or partial necrosis), they still did well in long term, allowing for a good granulation bed underneath, which was able to be skin grafted, with good secondary healing.

Keywords: local/regional perforator flap, harvesting technique, tactical tips.

PERFORATOR FLAPS IN DIABETIC FOOT

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Introduction. Ischemia and/or neuropathy are the main etiology of lower leg and foot ulcers in diabetics. The reconstruction of such lesions is challenging because of the soft tissue deficit in the region.

Material and method. Free skin grafting, associated or not with negative-pressure therapy or other modern wound therapy, random flaps, local/regional muscle or fasciocutaneous flaps, free muscle, fasciocutaneous or perforator flaps were used to cover ulcers of the foot and distal lower leg in diabetic patients.

We will try to demonstrate that having at least one viable artery and protective sensibility in the affected lower leg, in patients with controlled diabetes, it is also possible to use propeller perforator flaps for reconstruction.

We analyzed the evolution of propeller perforator flaps performed in the Plastic Surgery Clinic of the Rehabilitation Clinical Hospital Cluj Napoca in diabetic patients with acute and chronic wounds involving the foot and/or lower leg. The flaps were based on perforators from the peroneal artery, posterior tibial artery and the anterior tibial artery.

Results. A very good healing rate was obtained primarily or after a superficial necrosis and skin grafting. We completely lost 1 flap and performed a secondary necessity amputation.

Conclusion. We consider that the use of propeller perforator flaps can be a good surgical option for healing ulcerations in diabetics.

Keywords: diabetes; chronic wounds; lower leg; foot; propeller perforator flaps.

LATISSIMUS DORSI + IMPLANTS VERSUS ADM + IMPLANTS IN BREAST RECONSTRUCTION

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We present our experience in breast reconstruction, comparing the latissimus dorsi associated with breast implant, versus the insertion of ADM matrix associated with breast implant, in a single stage procedure.

DIABETIC ISCHEMIC FOOT - HOW CAN WE IMPROVE THE PROGNOSIS?

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Introduction. Diabetes mellitus is a pathology widespread worldwide, with a continuously increasing prevalence. The complications of the diabetes mellitus, such as neuropathy, retinopathy, nephropathy and atherosclerosis are the main causes of morbidity and mortality of this multisystem disease. Arterial peripheral disease in diabetic patients varies from asymptomatic form to critical ischemia of lower limbs, causing ulcerations and gangrenes.

Material and methods. This study is a retrospective one, conducted on a group of patients who had been hospitalized and treated for characteristic injuries associated to the ischemic diabetic foot. Once the ischemia of the limb was diagnosed, restoring blood flow through revascularization techniques were performed in purpose of limb salvage.

Results. Favorable results were obtained after angioplasty procedures with or without stent, various techniques of revascularization or hybrid procedures witch include both mentioned procedures. The techniques of distal revascularization had a satisfying rate in saving the extremity of the limb.

Conclusions. For patients with ischemic diabetic foot, the appropriate medical and surgical treatment is important. The recovery, improvement of the quality of life and the salvage of the extremity of the limb are the targets of this procedures.

Keywords: diabetic foot, critical limb ischemia, revascularization.

A RARE CASE OF FOREARM TUMOR

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Small round cell malignant tumors are characterised by being highly malignant, relatively undifferentiated tumors, largely occurring in children; they include entities such as: Ewing's sarcoma, peripheral neuroectodermal tumor, rhabdomyosarcoma, synovial sarcoma, non-Hodgkin's lymphoma, retinoblastoma, neuroblastoma, hepatoblastoma, and nephroblastoma. We present a case of a patient with a tumor located at the midshaft, volar aspect of the forearm of 8/6 centimeters. The patient reports that the onset of the disease occurred about five months ago as a subcutaneous painless swelling, without any other changes in the surrounding area. Increase in size happened rapidly, along with the appearance of paresthesia in the median nerve distribution territory and decreased digital grip strength. An MRI was conducted, which revealed an imprecisely delimited tumor in the deep flexor muscle's lodge of the right forearm.

The clinical examination confirms the presence of a soft tissue tumor in the volar aspect medium third of the right forearm, imprecisely delimited, mobile on the superficial plans and adherent to the deep ones, without any changes in the overlaying skin, which causes deformation of the local landscape on an area of 12/10 centimeters. Laboratory investigations are completed with a computed tomography of the thorax and abdomen (without evidence of tumor suspicious changes in the lungs, mediastinum or liver).

We decided to perform surgery in order to excise the tumor, with a right axillary block anesthesia, with the patient in supine position, after applying a tourniquet to the arm to prevent excessive bleeding, under optical magnification of 2.5x, using classical surgical and microsurgical instruments. Intraoperatively, we found an encapsulated tumor, of about 8/6 centimeters in the muscle belly of the long flexor of the thumb, presenting adhesions to the radius periosteum and the interosseous membrane; the tumor was excised along with the adjacent muscle fibers, radius periosteum and interosseous membrane fragment; at the end of the intervention, a suction drainage tube was left in place. The postoperative evolution of the patient was favorable, the suction drainage was suppressed after 72 hours, the healing of the wound occurring without any problems.

The histopathological examination in paraffin revealed a small, round cell tumor malignancy and an ongoing immunohistochemistry examination will determine the tumor's histogenesis (neuroectodermal/mesenchymal).

EXPERIMENTAL MODELS FOR IMMUNOLOGICAL STUDIES IN VCA

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Objective. Our purpose was to develop a robust animal model that allows the evaluation of multiple parameters involved in the complex field of vascularized composite tissue allotransplantation (VCA). We want to standardize our knowledge in order to obtain the most suitable animal model to perform immunological studies, for reducing and refining the immunosuppressive therapy and promoting transplant tolerance. For evaluating immunological aspects we need a simple animal model, with less surgical technical difficulties, less complications and long term rates of survival.

Methods. We analyzed several microsurgical models in order to determine the most adequate one for immunological studies. We performed experimental models including bone component like orthotopic and heterotopic hind limb transplantations (we tested different techniques: entire or partial hind limb allotransplantation) and also osteomyocutaneous flaps (with different bone components), sternum transplantation, noting their advantages and limits. Also we analyzed other models (without bone component) including epigastric flap allotransplantation and abdominal wall transplant for determine their utility as experimental models for immunological studies.

Results. In bone component allografts, the osteomyocutaneous flap is less morbid and represents a promising experimental model in VCA studies. Epigastric flap allotransplantation and the transplantation of abdominal wall in rats represents useful tools for immunological studies, due to their skin component.

Conclusions. In order to reduce the duration of the procedures, morbidity and mortality of the animals and evaluating long term results of the immunologic protocols applied, we have primarily regarded setting an adequate experimental model for immunologic studies, implying simple models of vascularized composite transplants.

PRELIMINARY STUDIES FOR ABDOMINAL WALL ALLOTRANSPLANTATION

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Introduction. Closure of the abdominal wall in patients undergoing visceral transplantation can be extremely challenging, if not impossible for some cases, when autologous tissue is not an option for adequate reconstruction. Transplantation of a vascularized composite allograft including full thickness abdominal wall is an effective method to address this situation, as demonstrated in clinical cases performed in different international transplant centers.

Methods. We conducted a cadaveric study in order to familiarize with surgical techniques required in abdominal wall allotransplantation, including main vessels sources analysis, anatomic variations and particularities in raising the flaps for allogenic use.

Discussions. Abdominal wall transplantation is a particular entity in the field of vascularized composite allotransplantation, currently being performed only as an adjuvant procedure in organ transplantation (in patients that will undergo immunosuppressive therapy). In this type of procedures we don't need to balance the risk of lifelong immunosuppression with the potential clinical benefits of tissue transplantation as in other vascularized composite allografts. After overcoming immunological issues, future applications might include transplantation of the abdominal wall composite graft as an isolated organ transplant in patients with massive abdominal wall defects after trauma or complicated surgery.

We consider that more research should be conducted in this direction, due to the high reconstructive potential of the vascularized composite allografts, a promising application being full thickness abdominal wall coverage for extensive tissue defects.

PUSHING THE LIMITS IN PERFORATOR FLAPS

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Introduction. No specific examination, that establishes the exact area perfused by a single perforator vessel, has been described.

Therefore, estimating the dimensions of a fully viable perforator flap can vary from the surgeon's clinical experience to recently popular intraoperative dynamic perfusion imaging using indocyanine green angiography and dynamic infrared thermography.

Thus, the aim of this study is to demonstrate how far a plastic surgeon can go with flap harvesting based on one perforator vessel.

Material and methods. We present a case of a 55 year old woman, from urban area, obese (BMI 38), with a recurrent ulcerative malignant melanoma of the posterior aspect of the lower leg, complicated with cellulitis, where we performed aggressive debridement of the modified tissue and we covered the remaining defect using a 325 square cm fasciocutaneous propeller flap based on a peroneal artery perforator, rotated 170 degrees, and skin grafting of the donor-site.

Results. The postoperative evolution of the flap and the skin graft was uneventful, with 100% integration rate. Both patient and doctor were satisfied with the functional and aesthetic outcome. No clinical sign of tumor recurrence after one-year follow-up.

Conclusions. We successfully managed a potentially aggressive pathology, with severe complications at admittance, by performing wide debridement of the tumoral tissue and using a large fasciocutaneous propeller flap based on a single perforator, noting full viability of the flap, without performing intraoperative dynamic perfusion imaging.

BREAST RECONSTRUCTION – COMPLICATIONS ANALYSIS

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Introduction. Breast cancer has the highest incidence among malignant diseases in women, with 8.981 new diagnosed cases in 2014 in Romania. The screening programs, developed for early detection of breast cancer, led to a decrease mortality rate and to an increase life quality after mastectomy, which is a mutilating procedure, thereby the breast reconstruction improved in the last decades with numerous reconstructive procedures. Essentially there are two major types of breast reconstruction: one that uses silicone implants and tissue expanders and one that uses autologous tissue; or a combination in between. Despite the timing (immediate, delayed or delayed-immediate), all of the procedures are graced by complications.

Patients and methods. It will be featured a series of female patient cases that underwent breast reconstruction. There has been approached different methods of reconstruction using autologous tissue with free-TRAM flap, pedicled latissimus dorsi flap with silicone implants or with Becker expanders, silicone implants and expanders without autologous tissue. The patients were evaluated every day and were discharged after a medium period of 10 days. The breasts were reconstructed after radical mastectomies for breast cancer and after risk-reducing mastectomies for fibrocystic breast disease; some of the patient underwent radio- and chemotherapy.

Results. Complications occurred in approximately 20% of the cases and consisted in partial free-TRAM flap necrosis, marginal latissimus dorsi flap necrosis, rupture of a breast expander, deformity of a hemithoracic wall after tissue expansion (possible rib fracture).

Conclusions. Despite the improvement of surgical procedures, the reconstructive methods are graced by multiple possible complications. Each of the surgical reconstructive procedures has to be properly indicated for the specific status and condition of the patient.

KEYSTONE FLAP - OUR EXPERIENCE

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Introduction. Wound closure of the cutaneous defects has always been a difficult problem, especially in locations with limited tissue laxity; skin grafts, that were traditionally used in many defects requires mobility limitations and long hospitalization following surgery.

Keystone flap is a fasciocutaneous insular flap based on local perforators, described as two conjoined V-Y flaps. It can be used for coverage of cutaneous defects after tumor excisions, full-thickness burns excisions, traumatic defects.

Materials and methods. In this presentation, it is shown the versatility of the keystone fasciocutaneous advancement flap.

There were performed 12 keystone flaps in male and female patients over a 1 year period, etiology of the initial wounds included cancer resection, trauma and unstable scars. The covered defects measurements were from 3/5 cm to 10/30 cm. The flap was used in nearly every region of the body: calf, posterior thorax, heel, temporal region, cheek.

Results. Success was obtained in all patients by a healed wound with a minimum of 3 months follow up.

Conclusions. The versatility of keystone flap is given by simplicity of design, short operative time, minimal patient morbidity, good aesthetic outcome, cost-effective surgery and robust vascular supply.

NEW PERSPECTIVES OPENED BY REGENERATIVE SURGERY IN DUPUYTREN DISEASE

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Objectives. Plastic regenerative surgery with its new facets and therapeutical possibilities promises to have a role in the treatment of Dupuytren's disease.

This minimally invasive technique combines multiple percutaneous points sectioning of the fibrous strings with autologous fat tissue transfer, a tissue diminished or disappeared in this condition.

This technique leads on solving functional impotence due to contractures and on the other hand to decreasing the incidence of relapses.

Materials and methods. 25 patients operated with regional anesthesia through this minimally invasive technique, after positioning a retractor hand and under Esmarch band. The method implies small superficial incisions with transcutaneous needle, sectioning fibrous strings (20-30/digit), and then injection of adipose tissue (20-300cc/digit).

Results. The procedure was proven efficient: in 15 cases followed for less than one year, in 8 patients the results are excellent, in 5 the results are good, one satisfactory and in one the result was poor.

Conclusions. By using this safe and minimally invasive technique a constant outcome was observed at 1 year after surgery, without relapse. Fat grafting after percutaneous superficial fasciotomy seems to prevent exacerbation and tends to modify the biology of this disease. As we become more familiar with the properties of adipose tissue regenerative treatments, as this one, it can be the first step to developing minimal invasive surgical procedures in which our body uses its own resources for healing.

THE ROLE OF REGENERATIVE PLASTIC SURGERY IN THE POSTMASTECTOMY BREAST RECONSTRUCTION

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Background. There are numerous techniques and methods used in breast reconstruction after mastectomy. Some using flaps, implants or other combined techniques. Breast reconstruction using autologous fat transfer is not a new thing but it was used mainly as a filler. In light of the new discoveries regarding fat and its properties as a regenerative agent it represents, in our opinion, combined with other regenerative agents, an important asset in plastic surgery armamentarium.

Material and methods. From November 2010 till now 12 cases of breast reconstruction after mastectomy were studied (3 cases of composite reconstruction with implants and fat and, one case of composite reconstruction and enriched fat ADSC). Also, PRP and fractional CO2 laser were used for better results. All stages from reverse expansion operating technique till imagistic follow-up were summarized.

Results. The results are presented by stages, commented with concision about difficulties and challenges encountered. The effects of fat and other regenerative agents (PRP, Fractional CO2 LASER, ADSC) led to the better intake of fat and changes in trophicity of the skin.

Conclusions. From our experience our team developed a protocol. If this is followed with accuracy and skill the regenerative surgery in breast reconstruction brings good results and satisfaction in both patient and plastic surgeon. It is an important tool in breast reconstruction especially after radiotherapy due to the tissue regeneration effects. Still it remains a challenging path due to the difficulties that patient and surgeon might encountered.

THE EVALUATION OF MARGINAL BLOOD PERFUSION IN FASCIOCUTANEOUS FLAPS IN THE SHANK AND FOOT

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Purpose. The evaluation of the marginal perfusion in the pedicled fasciocutaneous flaps in order to use them for covering post-traumatic/ poest-surgical defects. Fasciocutaneous flaps are structures that contain dermis, hypodermis, underlining fascia, vascular-nervous structures depending on the topographic region.

Method. After the local evaluation of the injury, before and during the surgery, the adjacent nerve is preserved to ensure the inervation of the topographic territory. In the study will be used human cadavers preserved through refrigeration, injected with contrast coloured substances, depending on the blood vessels, dissection and photography through trans-illumination.

Results. The results will be corroborated with arteriographies, flebographies and Doppler imaging of the patients included in the study.

Keywords: marginal blood perfusion, fasciocutaneous flaps, arteriography, flebography, Doppler imaging.

RECONSTRUCTION OF UPPER LIMB BONE DEFECTS BY FREE VASCULARIZED FIBULAR GRAFT

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Between February 2003 and January 2015, forty five cases with bone defects of the upper limb were reconstructed by free vascularized osteoseptocutaneous fibular graft in the Microsurgery Unit, Assiut University.

Microsurgical reconstruction using free vascularized fibular graft was indicated for upper limb bone defects exceeding six centimeters following trauma or resection of aggressive benign or malignant bone tumor of the upper limb bone with no involvement of the neurovascular bundles. Minimum FU 12 months.

The tumor group included 24 patients. (14 males, 10 females). Average age at the time of surgery of 19.8 years (range; 5 to 35). The tumor involved the humerus in 18 patients, and the radius in 6 patients. Half of the patients had benign tumor and the other half had malignant one.

Thirteen patients received pre-operative chemotherapy. The resection was intra-articular in 11 patients, extra-articular in 7, and intercalary in 6. The mean length of bone defect after tumor resection was 13.48 cm (range 8 to 23).

Patients with post-traumatic upper limb bone defects were twenty one, sixteen males and five females. The average age at the time of free vascularized fibular graft transfer was 33.09 years (range; 3 to 64). The average length of the bone defect was 10 cm (range: 6 to 14.5). The site of the bone defect was the humerus alone in seven patients, the humerus and the proximal radius and ulna in two patients, the humerus and the proximal ulna in one patient, the radius alone in eleven patients and distal radial epiphysis, carpals, and ulnar 4 metacarpals in one patient. Infection was initially present in all patients. At the time of index operation, infection was present in two patients.

The graft union rate in group-I (tumor) was 83.3% after the primary procedure and just 16.7% after a secondary procedure, while that in group-II (post-traumatic) was 95.2% after the primary procedure and just 4.8% after a secondary procedure. There was no significant statistical difference in the mean time to union between group-I (tumor) and group-II (post-traumatic).

The overall incidence of hypertrophy was 22.2% (10 out of 45 patients in both groups) and the amount % was with an average 10.2% (range 0% to 88%). There was a statistical significance between the age of the patients and the time of union. This may explain that hypertrophy is dependent on the mechanical loading of the graft. 80% of cases with hypertrophy occurred in reconstruction of humeral defect (8 out of 10 cases) with higher amount of hypertrophy reaching up to 88%, while 20% occurred in reconstruction of radial defect (2 out of 10 cases) with a maximum amount just 10%. The incidence of hypertrophy of the free fibula at the final follow up was 20.8% in group I with an average 14.54% (range 0% to 88%), and was 23.8% in group II with an average 5.23% (range 0% to 60%). The hypertrophy is mainly dependent on the mechanical loading which is affected basically by the age of the patient, time of union, and the presence of freely mobile joints of the upper limb.

No complications at the donor site in 34 patients (75.6%) and 2 complications at the donor-site occurred in 11 patients (24.4%). Superficial infection occurred in 6 patients (13.3%) and partial loss of the STSG in 5 patients (11.1%) that eventually healed with local wound care and repeated dressing.

Joint arthrodesis was performed in 28 patients (18 patients in group I and the remaining 10 patients in group II). The patients were satisfied with the results.

In tumor group functional results were evaluated using functional rating system of the Musculoskeletal Tumor Society for the upper limb (MTSRS). The average total score of the patients one year after the reconstruction was 22.04 (range; 17 to 29) points. The low score of 2 patients was due to delayed union of the distal graft host junction in one patient and the other patient was complicated by local recurrence. Three patients were not evaluated functionally. In one patient local recurrence occurred and amputation is done at the 12 month post operative. The other 2 patients local recurrence and distant metastasis occurred and the patients died of disease immediately at and within 1 month after the end of the first year. Patients who were followed for more than one year showed either improvement or no alteration of their 12 months score except in 2 patients. These 2 patients showed decrease in their 12 months score because of local recurrence and distant metastasis. At the end of the study, the mean follow-up period was 29.37 months (range; 12 to 72) from the index operation and the average total score was 24.85 points (range; 16 to 30).

In post traumatic group functional results were evaluated using Tang's scoring system, which evaluates both clinical

and radiological outcome. According to Tang's scoring system the following results were obtained. Excellent clinical results in 5 patients, good clinical results in 8 patients, fair clinical results in 7 patients, and poor clinical results in 1 patient. Excellent radiological results in 15 patients, good radiological results in 5 patients, fair radiological results in 1 patient, and no patients showed poor radiological results. Shoulder elevation was normal in 15 patients and limited in 6 patients. The elbow joint was fused in 5 patients, and the range of elbow motion was normal in 14 patients and limited in 2 patients. As regard pronation and supination, it was lost in 3 patients. 2 patients due to proximal radioulnar synostosis as a complication cases no.5 and 8, and 1 patient due to reconstruction of the defect as a one bone forearm case no. 12. In the remaining 18 patients, normal range of pronation and supination was obtained in 4 patients and the other 14 showed limited range. The wrist joint was fused in 5 cases. The range of wrist flexion was normal in 8 patients and limited in the remaining 8 patients. The range of the wrist extension was normal in 5 patients and limited in 8 patients. 3 patients with loss of the wrist extension due to not reconstructed radial nerve injury cases no. 2, 7, and 8.

TELESCOPING VASCULARIZED FIBULAR GRAFT (VFG): A NEW METHOD FOR BRIDGING BONE DEFECTS WITH SHORTENING

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Introduction. Post traumatic and congenital bone defects with shortening represent a challenge with no definite solution. The aim is convert the segmental defect into a segmental fracture with vascularized middle segment that heals without creeping substitution.

Methods. Congenital tibial pseudoarthrosis, all neurofibromatosis (5 cases), Other pathology including post traumatic (n=7). Average age at surgery 12.6 yrs (5 - 18). Average limb length discrepancy 9 cm (7 - 13). Latency period before lengthening 15-21 days postoperatively. Contralateral Osteoseptocutaneous vascularized fibular graft (VFG) with either Ilizarov or monolateral LRS frame were used. Initial rate of lengthening 0.5 mm/day then adjusted. Removal of frame was done when bridging callus was seen at least 3 cortices.

Results. All cases went to union, 3 cases needed secondary procedure, iliac bone graft or frame re-adjustment. Length gain: 7.4 cm (4.4 ~ 8.7). Healing index: 89 day/cm (22 ~ 280). Discussion and

Conclusion. Vascularized bone transplant is a useful technique in reconstruction of bone defects, the additional use of external fixator provides additional benefit for management of shortening e.g. after pseudoarthrosis resection, and provides one stage reconstruction for combined bone and soft tissue defects (Unique). The use of telescoping technique, allows simultaneous correction of shortening while treating the non-union in a single-stage operation. This method avoids corticotomy in the congenitally or traumatically affected bone and markedly shortens the time of frame application.

TREATMENT OF SEVERE SEQUAE LAE OF INFANTILE HIP SEPSIS: FREE VASCULARIZED EPIPHYSEAL TRANSFER; A PRELIMINARY REPORT

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Introduction. Tom smith's disease or acute arthritis or epiphysitis of infancy, is a surgical emergency condition needing early surgery to save joints and avoid years of disability. The catastrophic sequelae of delayed diagnosis of septic arthritis of the hip are a consequence of destruction of the articular hyaline cartilage and irreversible damage to the epiphysis, physis and metaphysis of the proximal femur and occasionally the tridiate cartilage of the acetabulum ending with hip dislocation. This should be preliminarily managed by open reduction and acetabuloplasty followed by a procedure to maintain proximal femoral growth. In 1967 Wiessman reported transplantation of the trochanteric epiphysis into the acetabulum, with guarded results, recently vascularized proximal fibular epiphyseal transfer was described for reconstruction of long bone epiphyseal defects.

Objectives. The aim of this study is to evaluate the results vascularized epiphyseal transfer in late presented cases of septic epiphysitis of hip.

Methods. We report preliminary results of the newly prescribed technique of vascularized epiphyseal transfer for late presented cases of septic epiphysitis of the femoral head with avascular necrosis, surgical procedure is prescribed.

Results: Clinical results including pain, range of motion, gait, limping, stability and limb length discrepancy (Mckay's criteria) and radiological results (Severin's classification) including the shape of the head, reduction of femoral head, epiphyseal appearance of the head and tridiate cartilage, neck shaft angle, coxarthrosis, and limb length discrepancy were evaluated.

Conclusions. The technique has pros and cons. In spite of being a procedure, and previous studies have shown some satisfactory results after subtrochantric osteotomy and transposition of the apophysis of the greater trochanter into the acetabulum in children with total femoral head necrosis due to septic arthritis, a double goal of restoring joint function and growth potential cannot be achieved except by means of free vascularized epiphyseal transfer.

RECOVERY OF HAND FUNCTION AFTER SURGICAL RECONSTRUCTION OF BRACHIAL PLEXUS IN OBPP

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Introduction. Obstetric brachial plexus palsy (OBPP) is an injury with deleterious medical, psychological and socioeconomic sequelae both for the patient and his or family. The loss of feeling or the simplest God-given skills such as muscle control in an infant's arm and hand can affect families for an entire lifetime.

Pateints and methods. 43 patients with total obstetric brachial plexus palsy underwent brachial plexus exploration and reconstruction. The distribution of the patients between the two genders was almost equal, with 22/43 males (51.1%) and 21 females (48.9%). The right side was affected in 27 (62.7%) cases and left side in 15 (35.3%) cases. Bilateral affection was noticed in 1 (2.3%) case in which the left side was treated conservatively and the other side was explored surgically. The Mean age at surgery was 15.8 months (3-96 months). The mean follow-up period was 3.7 years.

Surgical procedures included neurolysis; neuroma excision and interposition nerve grafting and neurotization, using spinal accessory nerve, intercostal nerves and cross neck C7 root. Nerve suture was done in all cases using 10/0 Nylon suture.

Evaluatinon of hand function using the Toronto scale, Raimondi grading system and Limb integration into the normal daily activities.

Results. Satisfactory recovery was obtained in 61.1% for finger flexion; 31.4% for wrist extension and 45.8% for fingers extension. Using the Raimondi scoring system, out of 32 cases 16 achieved a score of 3 or more (functional hand), 16 cases had a score of 2 or less. As regards limb integration into the normal daily activities 3 cases were poor, 8 cases were fair, 14 were good and 8 were excellent. Limb integration did not significantly correlate with any of the regained upper limb functions except a positive significant correlation with shoulder external rotation.

Summary and conclusion. Supra and infra clavicular explorations should be conducted in every case for possible existence of double level lesion. In total palsy the earlier the intervention the better the results. Apparently intact C8 and T1 root should be left alone if the patient has partial recovery, no horner sign and was operated early enough (3 or 4 month age). An apparently intact non functioning root with no positive response to electrical stimulation and especially in the presence of Horner syndrome should be neurotized with the best available intraplexal donor.

SURGICAL EVIDENCING OF PERFORATORS VESSELS OF THE FRONT LEGS IN RAT

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Objective. The aim of the study is to highlight the perforator vessel of the front leg in rat (as a experimental model), in order to identify the better vascularized area for a possible skin sampling.

Methods. A group of 20 Wistar rat were used, each of the rat undergo sedation and anaesthesia, the arm area of the left and right front leg were shaved and disinfected. The rats were putted in dorsal recumbency. The incision was made on the medial line of the arm to antecubital fossa. The microsurgery dissection was performed using 6x magnifying lens.

Results. The dissection branches from the brachial artery. On the skin fold, there were shown 2 perforator artery branches in the 1/3 medial area of the arm and in the 1/3 proximal area of the arm. The vessel has a narrow calliper (aprox. 0.1mm) and a short extramacular trajectory ($2\text{ mm} \pm 0.6\text{ mm}$) and produce a tortuous aspect in the tegument ($5\text{ mm} \pm 0.7\text{ mm}$) after that spread inside the tegument in order to form the tegumentar vascular network.

Conclusions. The vascularization is reduce compared with other area, but the arm region in rat offer a viable area for skin sampling.

Keywords: perforator vessel, arm, rat as an experimental model.

PREDICTORS OF COMPLICATIONS IN FREE FLAP RECONSTRUCTION: A 10-YEAR SINGLE-CENTER RETROSPECTIVE EVALUATION

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Introduction. Since the advent of free skin flap transfer in 1970, free tissue transfer has become the workhorse of reconstructive microsurgery in treating complex bone and soft-tissue defects, but with a complication rate ranging from 6.67 to 70%, as reported in the recent literature.¹⁻³ The aim of this study was to determine the complication rate and to identify key predictors in the appearance of intra- and postoperative complications in free flap procedures performed during a 10-year period of time at the Plastic and Reconstructive Surgery Department of the University Hospital of Bern.

Materials and methods. Data from 565 patients undergoing free flaps were retrospectively analyzed (age, sex, smoking status, comorbidities, defect etiology, defect location, flap type and complications). Pearson's Chi-square test for association was used for the categorical variables and a logistic regression model was conducted to determine the impact of each factor on postoperative complications.

Results. The overall flap survival rate was 97%. Flap revisions were necessary in 32.7% of cases, the most frequent indication being partial flap necrosis (11.7%), followed by wound infection (7.4%), hematoma and postoperative thrombosis (5.8% each). In the univariate analysis, diabetes and cerebrovascular accidents were highly associated with complications. In the logistic regression model, the sheer presence of comorbidities (e.g. high blood pressure, coronary artery disease, diabetes, cerebrovascular accident, obesity, peripheral artery obstructive disease) predicted a 3.4 times higher complication rate.

Conclusions. By and large, the presence of comorbidities was shown to increase the complication rate in free tissue transfer. In particular, diabetes and cerebrovascular accidents were detected as singular risk factors on their own.

Keywords: free flaps, complications, predictors.

COMPARTMENT SYNDROMES - COMPLEX PROBLEM, MULTIDISCIPLINARY APPROACH

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Introduction. Modern pathology means not only more efficient treatments, but also different approaches, based on thorough knowledge regarding patho-physiology and therapeutical pathways; an example is the Compartment Syndrome (CS) which became increasingly interesting for specialists of all fields, once it was clearly demonstrated that it can affect any organ or structure which can host a pressional imbalance between the increasing content and the inextensible container. From this point of view, CS is of particular interest for orthopaedic surgeons and specialists in reconstructive surgery, as the complex aspects regarding diagnostic and therapeutic require a multidisciplinary approach

Material and method. The etiology of CS is most frequent traumatic, while non-traumatic causes (monoxide poisoning, bariatric surgery, chronic effort, post-operative complications) are atypical, but severe, as they generate delays in diagnosis and treatment, so they must be properly tackled. In most of the cases, it is a traumatic event which generates the CS; it is essential for specialists involved in limb trauma to be aware that any segment of the limbs can be affected (including the bone, with secondary bone necrosis), and to properly assess the clinical symptoms; this paper underlines the importance of the clinical appearance, which is the most important feature for establishing the diagnosis, once that controversies still exist regarding the level of the pressure which characterizes CS. Based on the pathophysiology of the CS, represented by post-traumatic rhabdomyolysis with local and systemic effect, several important features are outlined, especially those which describe the relation between the pressional imbalance and the peripheral arterial circulation, thus allowing to properly assess the correlation between CS and the peripheral pulse, a problem which frequently results in diagnostic confusions. The paper also refers to the moment of performing fasciotomy, related to the compartmental pressure and clinical aspect, as well as to the debate regarding the septic risk of fasciotomy, otherwise overwhelmed by the gravity of potential complications of neglected CS. Clinical cases treated in the Orthopaedic and Trauma Clinic of the Clinical Emergency Hospital are analysed in order to evaluate the incidence, the treatment and the outcome of CS in different circumstances

Results. The analysis of the patients in the study group showed that CS can affect any skeletal segment surrounded by an inextensible structure; early treatment based on clinical aspect mainly proved to be a protective measure for decreasing the incidence of complications, while delaying the treatment can be followed by amputation or even death of the patient, due to systemic effects of rhabdomyolysis, affecting primarily the kidneys, then other vital organs and systems. The outcome of the patients in the study group proved that differential diagnosis is of great importance for the proper treatment, as confusions with deep vein thrombosis or cellulitis can result in major problems (as demonstrated by cases)

Conclusions. CS is a frequent pathological aspect in modern traumatology; its pathophysiology is based on the consequences of increased pressure upon the intra-compartmental structures: muscles, nerves, blood vessels, thus explaining the clinical aspect and the correct treatment. As different structures are affected, excision of the necrotic tissues followed by reconstructive procedures are necessary, thus requiring a multidisciplinary trained team able to properly approach the local and general pathological findings. Failure to apply an integrated treatment can be followed by local invalidating sequelae, or even by systemic vital complications, thus demonstrating the importance of the multidisciplinary cooperation

BREAST RECONSTRUCTION IN A COMPLEX CASE OF CONGENITAL BREAST ASYMMETRY – CASE REPORT

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Background. This is an extremely interesting case report of a female with severe congenital breast asymmetry that came in our clinic for surgical treatment that involved breast reconstruction. To solve this case, we used several reconstructive surgical techniques. The key to a successful result was represented by the adequate combination of these different techniques: breast augmentation using silicone prostheses, breast reduction, mastopexy and areolar complex remodeling.

Materials and methods. For the major volume difference between the two breasts we used the breast reduction technique, followed by mastopexy. The dissimilarities concerning the shape, structure and contour were solved by using two distinct silicone breast prostheses which varied in size and shape. For the left breast we used a round implant while for the right breast we used an anatomic prosthesis. The patient had a good postop evolution and did not develop any septic complications or otherwise. The patient was discharged after 5 days of hospitalization.

Results. The six month postop photos show the symmetrization of the breasts, with no volume, shape or contour differences. The inframammary crease is the same on both sides and the areolas have similar shape and position. Besides the mathematical analysis of the final shape and aspect of the breasts, the most important fact of this case is, beyond all, the patient's level of satisfaction, which on a scale from one to ten she gave a maximum grade.

Conclusions. To summarize, we, the operating team, underline that although the use of breast prostheses, which differ in shape and volume, might be risky, this complex algorithm of surgical breast reconstruction can lead to impressive results. In the same time, another extremely important aspect of this type of surgery is represented by the symmetry of the areolas, which is defined by their positioning and size. Sometimes, the asymmetry of the nipple-areola complex is more noticeable than the small breast volume differences. Nonetheless, the psychological factor is as important as the clinical results. The level of satisfaction is outstanding: the patient loses her insecurities and becomes more confident and open.

RECONSTRUCTIVE TECHNIQUES OF THE OSTEITIC LOWER LIMB – CASE STUDY

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Introduction. High force traumas are, upon all, the main cause of osteitis and osteomyelitis of the lower limb. Besides traumas, there are other known pathologies responsible for these conditions, like malignant tumors, disorders of the circulatory system and postop orthopedic surgery sepsis. We present a case series of various reconstructive surgeries meant to save the lower limb from amputation.

Materials and methods. This study is about our clinical approach regarding some cases of high complexity concerning the calves, by emphasizing the advantages and the disadvantages of different reconstructive techniques. The studied group included 134 patients treated in our clinic in the past 10 years. The reconstructive techniques which were used for treatment of the osteitic and osteomyelitic leg consisted in various types of plasties, including local and regional flaps, perforator flaps and free flaps.

Results. After carefully analyzing and comparing the results, we reach the conclusion that 87% of the patients had a favorable local evolution, which is defined by total coverage of the defect and cure of the infection. 14 patients out of 134 needed secondary surgeries in order to treat the remaining fistulas and 3 patients had a less satisfactory evolution, which implied amputation of the leg.

Conclusions. Severe infections of the calf frequently associated with fistulas are without question redoubtable complications of lower limb injuries. They require complex therapeutic actions in order to salvage the affected leg. Suppurative fistulas and malignant tumors localized in the lower third of the calf engage the surgeon to embrace a much more complex therapeutic approach post excision. The reason is represented by the fragile ratio between the soft tissue and the exposed bone from that anatomic region. An interdisciplinary collaboration between plastic and orthopedic surgeons is salutary and, may we say, even mandatory. This way, the chances to a successful surgical treatment are higher and the continuity of the bone and the reconstruction of the soft tissue are carried out.

ORTHOPLASTIC APPROACH IN UPPER LIMB TRAUMAS

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Introduction. Whenever we have to treat simple or complex traumas in the upper limb, we should apply some very well established principles.

Material and method. We present the algorithm which guides the authors in treating upper limb traumas, applied in practice in the Plastic Surgery Clinic of the Rehabilitation Clinical Hospital, Cluj-Napoca. The patients admitted with simple or complex traumas were investigated with case specific laboratory tests and preoperative interclinical consults, the therapeutic options were described and discussed with them, then they were taken to the operating room.

The antibiotics and medical course of treatment was established following the Clinics' protocols and guides.

For the acute cases the operation included careful debridement, then the suture or reconstruction of the destroyed anatomical tissues, from bone to skin, then the coverage of soft tissue defects, when necessary.

For the chronic, infected cases it was recommended to postpone the definitive closure to a later time, usually in the following 24-48 hours, but not later than 72 hours.

The reconstruction technique was tailored to the necessities of each defect, taking into consideration also the patient's general state of health.

Results. The results were dependent on the severity of the trauma, the associated pathologies and the type of microbial pollution in the wounds.

Conclusion. Whenever is possible, the reconstruction of all injured tissues in one single surgical procedure is to be desired, but when the cases are very complex, old or with severe infection, the procedure can be performed in multiple surgical stages.

Keywords: upper limb trauma, surgical treatment protocol, all-in-one reconstruction.

OUR APPROACH IN THE REPAIR OF FLEXOR TENDON INJURIES IN ZONE II

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Introduction. There are a lot of surgical techniques employed for the suture and reconstruction of flexor tendons in fingers. Each of them has advantages and disadvantages concerning the bulkiness of the sutured stumps, the resistance and the composition of the suture threads, the postoperative start of rehabilitation.

We present a refinement of the initial technique, which can be used also in tendons defects.

Material and method. We are using the Brunelli modified Georgescu technique for suturing flexor tendons in fingers in zone II, which was applied also for flexor tendons defects. The gaps between the tendons' stumps were between 2-5 cm and the tendon graft was harvested from the flexor superficialis tendon of the same finger.

Also, the technique was applied in the suture of the flexor longus tendon of the thumb.

We present the results obtained in the cases operated between 2000-2017 in the Plastic Surgery Clinic of the Rehabilitation Clinical Hospital.

Results. We obtained excellent and good results in all cases, with no secondary rupture at 12 months follow up. The results were also good for the flexor tendons reconstruction with graft, using the same technique.

Conclusion. This technique allows an efficient displacement of the tension point from the sutures' site, it is not bulky, provides a good resistance and the rehabilitation treatment can start immediately after the surgery.

Keywords: flexor tendon, suture, tendon graft.

OPEN CARPAL TUNNEL RELEASE

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Introduction. Carpal tunnel syndrome is a chronic pathology that associates with a range of sensory and motor functional problems, which, left untreated, can reach up to the point of complete anesthesia or motor invalidation. Surgical treatment is the only one that can alleviate the symptoms and remove the cause of the disease.

Material and method. Our study takes into consideration the patients who presented and were treated by the authors in the Plastic Surgery Clinic in the Rehabilitation Clinical Hospital, Cluj-Napoca. We describe the preoperative investigations, the surgical technique and the postoperative course of treatment, with a strict rehabilitation regimen and Diapulse treatment.

Results. We had a complete remission of the symptoms, which did not reappear up to 12 months follow up.

The study is still ongoing, but we have found an improved rehabilitation time and fast improvement of symptoms after the postoperative regimen we employ.

Conclusions. We believe that the complete transection of the retinaculum flexoris and the complex postoperative treatment we use is helping patients with a faster and better rehabilitation, followed by a faster social reinsertion.

Keywords: carpal tunnel, Diapulse, open approach surgery.

PERCUTANEOUS NEEDLE APONEUROTOMY IN DUPUYTREN

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Introduction. Dupuytren disease is a common, but invalidating pathology, treated conservatively or surgically, depending on the severity.

We consider the percutaneous aponeurotomy an efficient technique for selected cases.

Material and method. The cases included in this study were mainly males, operated by the authors in the Plastic Surgery Clinic of the Rehabilitation Clinical Hospital, Cluj-Napoca. The pathology affected all fingers, including the first ray, in 26% of cases being bilateral.

We present the surgical and postoperative protocol of treatment.

Results. The surgery obtained a complete extension of the afflicted fingers in all cases and there were no vascular or nervous complications after the surgery. There were 0.5% relapses in the follow up period, in the very old and severe cases.

Conclusion. We consider this procedure a very fast, easy and efficient minimally invasive technique, which can prolong the functional time until the more complex, more invasive surgical techniques should be required.

Keywords: Dupuytren, minimally invasive, percutaneous aponeurotomy.

PERFORATOR FLAPS BASED ON METATARSAL / COMMON DIGITAL ARTERIES PERFORATORS

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Introduction. The reconstruction of plantar defects is challenging and, due to its special anatomical characteristics, a lot of techniques were described. This study will present a new possibility to cover soft tissue defects in the sole of the foot.

Material and method. We present the cases solved in the Plastic Surgery Clinic in the Rehabilitation Clinical Hospital, Cluj-Napoca, starting with 2011, using flaps based on the small perforator vessels originating either from the plantar metatarsal arteries or plantar common digital arteries.

Results. We had 100% survival rate of the flaps, with a complete regain of ambulation at 6 weeks. In 3 cases we had a partial wound dehiscence, which secondary healed.

Conclusions. We consider that this technique provides a good solution for soft tissue defects in the plantar area, with a stable sensitive rehabilitation.

Keywords: plantar skin, perforator flap, plantar metatarsal arteries, plantar common digital arteries.

USING DYNAMIC INFRARED THERMOGRAPHY TO OPTIMIZE COLOR DOPPLER ULTRASOUND MAPPING OF CUTANEOUS PERFORATORS

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Aims. The high technical demands associated with perforator ap demand a precise preoperative identification and evaluation of perforator vessels. Color Doppler Ultrasonography (CDU) and Dynamic Infrared Thermography (DIRT) are currently used for preoperative perforator mapping. Each individual technique has advantages and disadvantages. The purpose of this paper is to analyze the value of combining the two methods in order to optimize the process of preoperative perforator mapping.

Material and methods. CDU and DIRT were used for preoperative perforator mapping in 10 pigs. The results were compared to intraoperative findings. Total number of perforators, localization, and identification of the dominant perforator was analyzed for each method. The examination time was recorded for each procedure.

Results. Both methods had a high sensitivity in determining the number and localization of perforators when compared to those identified during surgery. DIRT produced a higher number of false positive results. CDU accurately identified the emergence of the perforators in the fascia in all cases. Both methods correctly identified the dominant perforator. The sensitivity, positive predictive value, and accuracy of CDU were 93.56%, 97%, and 91.30% respectively and for DIRT 95.05%, 80.67%, and 77.41% respectively. The average examination was 39.76 minutes for CDU and 10.24 minutes for DIRT. The average time taken into account for the analysis of a single perforator in order to confirm DIRT findings was 1.83 minutes.

Conclusions. Preoperative perforator mapping has become a compulsory step in nearly all reconstructive procedures. In our study, both CDU and DIRT correctly identified the dominant perforator in all cases. By combining the two examinations overall mapping time can be reduced significantly. A reduced examination time translates into increased patient compliance and a lower procedure cost. The combined mapping technique facilitates the selection of the ideal perforator in all cases. Correctly identifying the dominant perforator preoperatively reduces operative time, lowers complication rates and ensures an overall better result.

Keywords: dynamic infrared thermography, color Doppler ultrasonography, perforator ap.

INCREASING THE ACCURACY OF NIR FLUORESCENCE ANGIOGRAPHY ASSESSMENT OF FLAP PERFUSION USING AN INTRAOPERATIVE THERMAL CHALLENGE

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Introduction. Indocyanine green angiography is currently used to determine flap viability during reconstructive procedures. It provides dynamic, real-time, intraoperative information about vessel location, perfusion patterns and flap physiology. The technique is useful in guiding resection of nonviable tissue prior to flap inset. However, the blood flow pattern in a flap immediately after harvest is markedly reduced due to a conglomerate of factors generated by surgical trauma. Skin perfusion recovers gradually in the postoperative period reaching a maximum point at 24h, thus intraoperative use of NIR angiography underestimates blood flow, leading to unnecessary resection of viable tissue. We hypothesized that using a local skin warming procedure to induce vasodilatation and increase flap blood flow during surgery, would mimic the perfusion patterns recorded in the late post-operative stage.

Methods. Submental flaps were created in 8 pigs. The flaps were harvested on a single submandibular perforator. ICG angiography was performed in the intraoperative phase (ICGA Cold), intraoperative after inducing vasodilatation by warming the flap at 42°C (ICGA Warm) and at 24H postoperative (ICGA 24h). A perfusion map was created for each flap by measuring the fluorescence intensity. By setting a fluorescence threshold of 33% as indicative of necrosis, the flap surface deemed viable by ICGA was measured for ICGACold, ICGAWarm and ICGA24h. The results were then compared to the actual flap necrosis observed clinically at 72h.

Results. When compared to the actual necrosis, intraoperative ICGACold underestimated perfusion in all cases with a mean value of 14.17%. Done postoperatively, ICGA24h was more accurate in predicting necrosis, underestimating perfusion by only 3.35%. Flap perfusion recovered significantly in the first 24h (mean 10.83%). ICGA performed after the intraoperative thermal challenge underestimated perfusion by 4.33%. The difference in perfusion between the intraoperative ICGAWarm and ICGA24h was on average 0.98%.

Conclusion. Local warming of the flap intraoperatively prior to performing ICGA provides perfusion values similar to those obtained at 24h. Inducing vasodilatation lowers the theoretical amount of tissue sacrificed from 14.17% of the flap surface to just 4.33%. Thermal manipulation of the flap greatly increases the ability of ICGA to correctly assess tissue perfusion intraoperatively.

Keywords: indocyanine green, flap perfusion, thermography

OSTEOSYNTHESIS MURINE MODELS IN ORDER TO STUDY FRACTURE HEALING

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Objectives. The bone is the first organ known to restore to its initial form after a fracture is healed. There are certain circumstances that need to be present in order for this to happen. There are so many studies regarding the histological aspects of the fracture healing [1-3], but few provide actually proof of the way the bone restores under the influence of different osteosynthesis methods. Therefore, we designed two murine models in order to study the way fracture heals using two of the most common osteosynthesis methods usually applied in hand fractures and to study which is the most suited osteosynthesis material.

Material and methods. The first model we designed involved bilateral femur fractures in Brown Norway rats and osteosynthesis using plates and screws for one limb and Kirschner wire for the other. Both methods were studied on the same subject. We tested two types of plates in order to see which one is better and after several weeks we harvested the femurs in order to be assessed. In the second model, we reduced unilateral femur fractures using plates and screws in one group and Kirschner wire in the second. After harvesting the femurs, cell counting was performed in order to see which of the methods leads to a better healing.

Results. The first model did not lead to the expected results due to the absence of a healthy limb in order for the rat to be able to put at rest the fractured limb. The second model proved from the histological point of view that osteosynthesis using plates and screws has better outcomes.

Conclusions. We designed two experimental protocols that are reproducible and can easily be used for further research. We proved that osteosynthesis using plates and screws offer better results than Kirschner wire.

Keywords: murine models, osteosynthesis, plates and screws, Kirschner wire.

MAIN INFLUENCING FACTORS FOR THE OUTCOMES OF SOFT TISSUE DEFECTS COVERAGE METHODS FOR THE UPPER LIMB

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Objective. The evaluation of the main influencing factors of the surgical treatment outcome of upper limb soft tissue defects using different types of flaps or skin grafts.

Methods. This paper makes a cohort retrospective study spread between Jan. 2010 – Sept. 2015 analyzing 563 patient focused on the outcomes of soft tissue coverage of the upper limb. The main variables analyzed are defect type, location, character and etiology, elected method of soft tissue coverage and clinical evolution. The data was compared using the Pearson's squared Chi test and Fisher's exact test for count data using R-Commander.

Results. The study includes 563 patients with 756 soft tissue defects. The average age was 43 (40-45) years with a sex ratio of M:F 3.4:1. The soft tissue defects coverage techniques used are: local flaps (advancement, rotation, transposition) in 238 (31.48%) cases, Z-plasty in 102 (13.49%) cases, local perforator flaps in 84 (11.11%) cases, regional pedicle flaps in 26 (3.43%) cases, regional perforator flaps in 51 (6.74%) cases, distance pedicle flaps in 8 (1.05%) cases and free flaps in 11 (1.45%) cases. In the remaining 236 cases we used STDG in 181 (23.94%) cases and full thickness skin grafts in 55 (7.27%) cases. On the overall, we had favorable evolution in 751 (99.33%) cases among which 55 (7.27%) required re-intervention having total flap necrosis in 5 cases (0.67%).

Based on the statistical analysis we demonstrated that the defect type and elected soft tissue coverage technique used, $p > 0.05$ ($p = 0.1$) present no statistical differences.

Analyzing the influence between flap evolution and defect location we identified significant statistical differences $p < 0.05$ ($p = 0.00039$), where for the arm and forearm we had more re-interventions compared with the other locations. In addition we encountered a significant statistical difference between the post-operative evolution and the defect etiology $p < 0.05$ ($p = 0.01$), with higher number of reinterventions for congenital defects.

Analyzing the most common class of flaps used, we identified a significant statistical difference between the postoperative evolution of the local flaps, Z-plasty and local perforator flaps, $p < 0.05$ ($p = 0.01$) having more frequent reinterventions for local perforator flaps.

Conclusions. The current methods used in soft tissue defect coverage have excellent outcomes. The post-operative evolution is influenced by etiology and affected upper limb segment. There is no difference between the postoperative evolution of the elected surgical methods used, except the different types of local flaps where local perforator flap required more often reinterventions.

A PASSION TO TREAT PEDIATRIC HAND CONDITIONS

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Treatment of pediatric hand conditions can be extremely rewarding. However, it is critical to make good decisions with regard to timing and specific treatment interventions. The full armamentarium of plastic and orthopedic surgical skills are required, such as muscle and tendon transfers, soft tissue coverage, digital transposition, osteoplastic lengthening, osteotomy, joint and digital transfers.

A passion implies a love for treating irrespective of remuneration. With that comes a passion for learning and developing new skills. This talk will progress through a personal collage of multiple pediatric and congenital conditions with an emphasis on cleft hand, digital aplasia and hypoplasia, tumors and vascular malformations, Madelung deformity and “bent” fingers.

TREATMENT OF CONGENITAL PIP CONTRACTURE

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The preoperative assessment will be discussed so that appropriate surgical management can be selected for the common condition of camptodactyly. Videos will be used to demonstrate operative and postoperative management. Attention needs to be given not only to flexion side releases but also to encouraging active PIP extension due to redundancy and laxity of the extensor mechanism. Outcomes for a case series will be provided. Interestingly, provided surgical correction is done while the skeleton is immature, the PIP skeletal changes can be reversed. A further case series will illustrate these skeletal changes.

USE OF DYNAMIC POSTURE AFTER SPECIFIC HAND INTERVENTIONS

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Objective. The aim of the study is to use dynamic posture in order to reduce the muscle stretch reflex in muscles after specific hand interventions.

Methods. Custom splints were used to posture injured hands in different dynamic postures. Rubber bands and hooks were used to build the devices.

Results. For the follow-up was done using PROM and AROM goniometry after 14 and 21 days and in specific cases up until 6 months after surgery.

Conclusions. Building dynamic posture splints reduce the risk of gap due to muscle stretch reflex, keep the hand in a functional posture and facilitate the function. Even more, during the treatment the set up can be used to exercise AROM, PROM and Resistive AROM all together without the need of outside intervention.

Keywords: tendon mobilization, dynamic posture.

HOW MUCH IS ENOUGH IN EARLY TENDONS MOBILIZATION

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Objective. The aim of the study is to assess all the known used protocols using early mobilization of flexor tendons injuries and highlight the key points of the variation we use in our practice.

Methods. The early active mobilization variations were used and compared with the most well-known protocols in use.

Results. For the follow-up we assessed injuries at 14 and 21 days after surgery using functional tests and short DASH. The results show that variations that use early active mobilization are more reliable in the first 21 days in all zones of flexor tendons.

Conclusions. The early mobilization of flexor tendons injuries has clearly show the potential in regaining hand function. Variations of techniques combined with active resistive ROM regain more function and strength in muscles in less time with less consumption of materials.

Keywords: tendon mobilization, flexor protocols.

RESULTS OF FIBULA FREE FLAP FOR MANDIBULAR RECONSTRUCTION USING A NEW APPROACH FOR VIRTUAL SURGICAL PLANNING

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Introduction. Maxillofacial reconstruction is known as a major surgical challenge, because of the complex anatomy, the sensitivity of the involved systems and the impact on facial appearance. We present a detailed description of our method for extensive mandibular reconstruction using open source virtual designing software and desktop 3D printers and analyze our most recent results with the technique.

Materials and methods. The surgical planning proceeded with importing the data from preoperative Angio-CT scans into the Amira program to separate the fibular and the mandibular fragments into individual parts. These segmented datasets were imported into the Blender open source design software, where arrangement of the Fibula segments into aligned sections were performed. Then, desktop 3D printing of the reconstructed mandible with the desktop 3D-printer was done. After fixation of the plate on the reconstructed mandible model, digital designing of the cutting guides was performed by the open source software. The 3-dimensionally printed in biocompatible plastic cutting guides were used intraoperatively to perform the mandibular and fibular osteotomies. The prebent reconstruction plate was fixed in the predetermined position. The fibula segments were fixed on the reconstruction plate, and vascular anastomoses and skin paddle inset were performed afterwards. Postoperatively, multislice computed tomography scans were taken for control purposes. We reviewed our results of mandible reconstruction with fibular free flaps from 06/2015-06/2016.

Results. A total of 15 mandible reconstructions with fibular free flaps were performed in the mentioned time period. There were no flap losses. One revision due to venous insufficiency was performed 6h postoperatively with complete flap salvage. Excellent alignment and bone contact at the osteotomy sites was achieved.

Conclusion. Shorter operation planning time, special fibula cutting guide design to increase accuracy in the osteotomies, predefined holes in cutting guide for better stability and more precise cutting can be mentioned as important characteristics of this method. The results of this technique are highly predictable and lead to excellent results regarding bone alignment and outstanding reconstructive success.

Keywords: fibula free flap; mandible; maxillofacial; virtual surgical planning.

AN ALTERNATIVE METHOD FOR MICROVASCULAR ANASTOMOSIS USING 2-OCTYLCYANOACRYLATE ADHESIVE. AN EXPERIMENTAL STUDY

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The following study aims to investigate an alternative method of microvascular end-to-end arterial anastomosis, providing equally positive outcome while reducing the operative time in vessels with the diameter smaller than 1.5 mm.

An end-to-end arterial anastomosis (femoral artery) was performed on twenty-four Wistar rats equally divided into two groups: The first group (S), on which an anastomosis using a classic technique was performed, with eight interrupted suture points - 10.0 nylon suture with a 70 μ taper needle – as well as a second group (A) on which a previously described technique was used, with three sutures applied in a triangulation fashion together with the application of a 2-octylcyanoacrylate based adhesive (DermabondTM, Johnson and Johnson). Both groups had a ten-day follow-up. Blood flow velocity - using Doppler ultrasound – was measured before and right after the procedure as well as two days following it on all rats; MRI was performed on two rats pertaining to both groups ten days postoperatively, together with Transmission Electron Microscopy (TEM) on prepared arteries from four rats pertaining to each group (two at 6 days postoperatively and two 10 days postoperatively).

All anastomosis were patent with positive patency test immediately after the procedure and none of the twenty-four vessels suffered from thrombosis. The operative time was shorter in the A group with no differences in blood flow velocity between the two groups. Both groups showed signs of endothelialization of the anastomotic line on TEM.

In our study we showed that we can obtain good results using an alternative, faster end-to-end anastomosis using only three sutures and a tissue adhesive, therefore we consider it a viable option for microvascular anastomosis.

MANTLE CELL LYMPHOMA – CHALLENGING DIAGNOSIS AND TREATMENT PLANNING

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Study goal. The growing prevalence of mantle cell lymphoma (MCL – rare B-cell NHL) and it’s potential aggressive behavior shows us how important are a correct diagnosis and suitable treatment planning in order to properly respond to this medical challenge.

Materials and methods. A 60 years old female patient, with a history of familial hypercholesterolemia presents to the Plastic and Reconstructive Surgery Unit of “Prof. Dr. Agrippa Ionescu” Emergency Hospital Bucharest, with cutaneous tumor-like lesions located bilateral at eyebrow level and right upper hemi-lip region. The ultrasound scan of the lesions showed semi-solid masses. No modifications were found after chest X-ray. Surgery was performed under general anesthesia and the 3 lesions were eventually excized. Mantle Cell Lymphoma diagnosis is established after morphopathological exam. Postoperatively, the patient’s evolution is favorable and she is transferred to the Oncology Unit, where CT scan of neck, thorax, abdomen and pelvis was performed. Multiple enlarged lymph nodes were found in thorax and abdomen along with hepatosplenomegaly.

Results. Although the skin tumors were the initial manifestation, imagistic exams revealed the starting point of the disease to be the lymphatic system. The accuracy of the initial staging is essential for the upcoming treatment strategy. Additional bone marrow aspiration and biopsy are needed. PET-CT scan is very useful in the rare limited I/II stage situation, before localized radiotherapy.

Conclusions. No matter the anatomic region where the primary tumor is discovered, additional test have to be done.

FUNCTIONAL AND AESTHETIC RESULTS IN THE RECONSTRUCTION OF CALCANEAL DEFECTS, OF DIFFERENT ETIOLOGY, USING ISLAND MEDIAL PLANTAR FLAP

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Objectives. Covering the soft tissue defects of the calcaneal region represents a challenge for the surgeon. This is due to both anatomical and functional peculiarities of the area and the relatively few possibilities of nonmicrosurgical techniques which can be used to cover the defects. The purpose of this paper is to highlight the usefulness and efficiency of island medial plantar flap for covering calcaneal defects of various etiologies.

Material and method. The study included 5 patients, 4 men and 1 woman, aged between 42 and 67 years. In 3 cases, the patients had trophic lesions of neurological cause (lumbar spine surgery in the past), always neglected by patients, with a long-term evolution (maximum 6 years). In 2 cases, the patients suffered from plantar tumors, for which we performed a large and deep resection with a large post excisional calcaneal defect with bone exposure. In all cases, after exploring the vascular status of the region, we decided to perform an island medial plantar flap. There were no accidents or incidents during surgery in any of the cases. In one case there was an anatomical vascular variant known from the preoperative arteriography.

Results. The results were good in all cases, with no vascular complication in the immediate postoperative period. In one case, there was a minor complication, a venous congestion of the flap, solved spontaneously in the 4th postoperative day. Functional results at distance were good with complete socio-professional reintegration of patients at 4-6 months after surgery. In all cases, the aesthetic appearance of the reconstructed region fully satisfied the expectations of patients.

Conclusions. The island medial plantar flap represents a solution to be chosen, sometimes by first intention, whenever the vascular status of the patient allows it. It is used for reconstruction of soft tissue defects of the calcaneal region, being an optimal surgical solution before neighbourhood flaps, like sural flap, or before free flaps transferred from other anatomical regions.

Keywords: calcaneal defect, flap, medial plantar artery.

SCHWANNOMA OF THE ULNAR NERVE – CLINICAL AND PARACLINICAL ASPECTS, FUNCTIONAL RESULTS

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Objectives. Schwannomas are rare tumors of the nerve sheaths, which are more common in the peripheral nerves, often being solitary. They represent about 5% of soft tissue tumors. Most of these tumors are benign, but malignant transformation is possible. Diagnosis is difficult, always established by histopathological exam.

Material and method. We present the case of a female patient, aged 42 years, complaining of the appearance of a swelling on the medial face of the left arm (on the ulnar nerve projection), with an evolution of approximately 2 years. The symptoms at the beginning were poor, with an insidious onset - just a local pain, irradiating in to the fingers. Thereby, the patient sought medical aid after 2 years. Local examination reveals a tumor of approximately 2x3cm, located on the medial third of the face of the left arm, regular shape, painful on palpation and spontaneous, mobile on subjacent plans, positive Tinel sign. Subjectively, the patient described dysesthesias and minor force deficiency (M4) in the left ulnar nerve territory. Ultrasound reveals a hyperechogenic nodule, possibly rising from the left ulnar nerve sheath. The MRI suspected the diagnosis of schwannoma tumor. The tumor was excised entirely, without additional functional nerve damage, and the histopathological exam confirmed the diagnosis of schwannoma.

Results. Immediately after surgery, the results were good, with a slight hypoesthesia in the ulnar nerve territory and a minimum deficiency of the abduction/adduction the fingers. The patient followed Physical Therapy. At the end of the Physical treatment, the 2PD and monofilament sensitivity tests showed normal parameters on the left ulnar nerve territory, with no functional deficiency. There has been no relapse or appearance of a similar tumor at one year after surgical excision, on the same nerve trunk.

Conclusions. Although schwannomas are rare tumors, they are the most common tumors affecting the nerves and large nerve trunks. Clinical signs and laboratory tests are not specific for schwannoma. MRI examination is the most appropriate imaging test, but it is almost impossible to differentiate a schwannoma from a neurofibroma. The recurrence rate is very low, and relapses are rather synchronous lesions in early stages of development that could have not been detected initially. The entire resection of the tumor, preserving the integrity of the nerve, is the therapeutic gold standard.

Keywords: schwannoma, histopathology, surgery.

EPITHELIOID HEMANGIO-ENDOTHELIOMA OF THE DISTAL PHALANX – A CASE REPORT

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Introduction. Epithelioid hemangio-endothelioma (EHE) is a very rare tumor, characterized by a borderline evolution, intermediate between hemangioma and angiosarcoma. It typically occurs between 20 and 40 years of age. The treatment options include simple excision, excision followed by adjuvant radiotherapy and amputation. Chemotherapy regimens are not standardized. There are arguments that EHE of the hand may have a more benign pattern in comparison with other locations.

Objectives. We present a case of EHE of the middle finger in a 24-year-old man, who present in our department with minimal pain, inflammatory signs and minimal nail changes (through the purple under nail tumor), following two traumatic episodes.

Methods. The therapeutic plan was to excise the tumor and the nail in local anesthesia and to perform the pathology examination.

Results. In the operating room we found a tumor with venous aspect, which we excised within macroscopic free margins. The pathology examination was doubled by immuno-histochemistry (and the diagnosis was cutaneous epithelioid angiomatous nodule, but the analysis reveal a borderline malignancy marker) that confirmed the EHE diagnosis with borderline malignancy marker. Although the surgical site healed very well, the evolution was unfavorable. The patient came back two months later with local recurrence, presenting important tumefaction of the distal phalanx and high-grade osteolysis at this level. At this time, the therapeutic approach consisted of amputation of the distal phalanx and distal half of the middle phalanx, with preservation of the superficial tendon flexor insertion and reiteration of the immunochemistry on the entire amputation piece. No postoperative recurrence has been noted by now.

Conclusions. In conclusion, in our experience:

- any kind of borderline tumor diagnosed by the pathologist requires an immuno-histochemistry exam for malignancy markers evaluation;
- local recurrence is a sign of malignant behavior;
- if recurrence is present, resection within oncological safety margins should be performed.

HIGHLIGHTING THE PERFORATORS VESSELS OF THE HIND LEGS IN RAT, THROUGH VASCULAR DISSECTION

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Objective. The study aims to highlight the perforator vessel of the hind leg in rats used as experimental model. The main objective of the study was to identify the main perforator artery in order to identify an area of the hind leg with high vascularity suitable for skin sampling.

Methods. The biological material was represented by 20 Wistar rat. The main perforator vessels of the hind leg were identified through vascular dissection. Each rat was sedated and anaesthetised, the upper leg area of the left and right back leg was shaved and disinfected. The rats were putted in dorsal recumbency. Two incisions were made, one on the medial plane from pubis to internal femoral condyle and a second one lateral from ilium to extern femoral condyle. The microsurgery dissection was performed using 6x magnifying lens.

Results. The dissection show 2 or 3 vascular perforator branches that have origin in the gracilis muscle. The origin of those branches is the artery that irrigate the gracilis muscle, being a branch from the femoral artery. In the proximal 1/3 area of the thigh was identified only 1 perforator vessel, originated in the gracilis area, with a convenient calliper that could permit a viable skin sampling. In the 1/3 distal area of the femoral muscle were highlighted other 2 perforator vessels that originate in the lateral side of the femur, those have a short calliper and trajectory.

Conclusions. The vascularization of the hind leg permit sampling of skin from the 1/3 proximal area of the thigh.

Keywords: perforator vessels, hind leg, rat as an experimental model.

DIFFERENT APPROACHES IN RECONSTRUCTION OF THE PERIORBITAL REGION DEFECTS

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Purpose. The periorbital region is less than 1% of the body surface, but has a complex anatomy including different structures as upper eyelid, lower eyelid, medial and lateral canthal regions .

The reconstruction process of this area requires a detailed approach because of the protective function of the periocular tissue in preserving vision and of the diversity of pathological processes that occur in this area due to trauma, tumors, burns, radiation, infections and congenital anomalies.

The aim of this paper is to present our surgical experience in choosing the right surgery treatment method for reconstructing periorbital defects and the possible complications.

Material and methods. We realized a non-comparative interventional case series of ten patients treated in the Plastic Surgery Department of Emergency Clinical Hospital "Prof. Dr. Agrippa Ionescu" for periorbital defects. We have approached different methods of reconstruction in ten patients with defects of periorbital area. The periorbital area included the upper and the lower eyelid, and the medial and lateral canthus.

Results. All the reconstructed defects were after excision of tumors, especially basal cell carcinoma: primary or recurrent.

The surgical techniques applied include: primary closure, full thickness skin grafting, local flaps and combinations of these.

Regarding postoperative complications, ectropion occurred in one patient with lower eyelid defect, the complications being corrected in another surgery.

Conclusions. The surgical technique chosen for this area depends on the zone of the defect, the extent of the eyelid defect, the thickness of the defect, the age and general health of the patient and the surgeon's experience

The main goal of the reconstruction process is the reconstruction of the three-dimensional anatomy of the eyelids which include protection of the eye surface from trauma and preservation of the normal function that usually takes priority over the esthetic result.

Keywords: periorbital region, eyelids, reconstruction.

RECURRENT HEMANGIOMA OF THE HYPOTHENAR REGION

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Objective. Hand hemangiomas are the fourth most common hand tumors, appearing most often in younger age female patients. These represent a benign proliferation of blood vessels within the soft tissue, found most commonly in the volar region. When the lesions become symptomatic, the main treatment is surgical excision.

Material and method. In this paper is described the case of a 61 year old female patient who was admitted in the Plastic Surgery department of the Emergency Clinical Hospital "Prof. Dr. Agrippa Ionescu" with a soft lump involving the hypothenar region and the medial aspect of the right palm. This was associated with numbness in the ulnar territory including the hypothenar region, the fourth and fifth fingers and throbbing pain.

Ultrasound examination and MRI were realized showing a vascular lobulated mass in the hypothenar region that incorporates the ulnar neurovascular bundle.

Surgical treatment was decided with excision of the tumoral mass and identifying and ligation of the tributary vessels.

Results. Histopathological examination revealed an arteriovenous hemangioma. The patient had no neurologic deficit postoperatively.

After two years the patient returned with similar symptoms, the ultrasound examination showing a possible recurrence. Surgical treatment was realized with excision of the vascular mass that was proven to be a recurrence. Postoperatively, no local complications encountered but after two months the patient developed paresthesia on the ulnar boarder of the fifth finger and in the hypothenar eminence associated with delayed adduction of the fifth finger.

Conclusions. Usually hand hemangiomas are situated superficially and do not have neurological involvement. Symptoms and fast growing lesions require surgical treatment, imaging, particularly MRI, playing an important role in their characterization.

Treatment consists in early excision of the tumor before developing a permanent damage to the vessel walls or impossibility of total resection which leads in many cases to recurrences.

Keywords: hemangioma, hand tumor, hypothenar eminence.

UPPER LIMB PAIN SECONDARY TO CERVICAL DISC HERNIATION – TREATMENT WITH ANTERIOR CERVICAL DISCECTOMY AND FUSION - SHORT TERM RESULTS

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Objective. Upper limb pain is a frequently associated with neuropathy, irrespective of the level of compression. Patients typically present with neuropathic pain corresponding to the level of nerve root compression, providing the need for differential diagnosis between axial and peripheral nerve compression.

Evaluating the efficiency of anterior cervical discectomy and fusion in the treatment of upper limb pain, secondary to nerve root compression.

Materials and methods. Retrospective analysis of a 6 patient series who benefited from surgical decompression and fixation of cervical discus hernias between 2012 and 2015. Patient clinical data and questionnaire scores (Neck Disability Index and Visual Activity Scale for Pain) were collected preoperatively, at 12 weeks and yearly at follow-up.

Results. Mean patient age at surgery was 50.2 years. All patients presented positive preoperative clinical testing for nerve root compression, confirmed by MRI while mean NDI was 40.2 and mean VAS-P was 7.7. Mean duration of follow-up was 2.2 years. Postoperative values (lack of symptoms in 5 patients, mean NDI decreased to 5.7 and mean VAS-P to 0.7 at 1 year follow-up) registered with a favorable outcome.

Conclusion. Anterior cervical discectomy and fusion proved to be a reliable surgical choice for treating upper limb pain secondary to nerve root compression at 1 year follow-up.

Keywords: radiculopathy; CDH - cervical disc herniation; ACDF - anterior cervical discectomy and fusion; neuropathy.

CASE REPORT: CORRECTIVE OSTEOTOMY IN A FOURTH METACARPAL MALUNION – A THERAPEUTIC OPTION FOR EXTENSION DEFICIT RECOVERY

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Background. Concerning hand fractures, one of the most frequent complications of prolonged conservative treatment or delayed or absent implementation of physical therapy is represented by decreased range of motion, translating in diminished function, further decreased quality of life.

Case presentation. In September 2016, a 21 years old male presented in the ambulatory clinic with a short arm cast after 4 weeks of conservative treatment for a fracture of the head of the 4th metacarpal of the right, dominant hand. After removal of the cast and follow-up x-rays, the fracture line was not evident although the distal fragment presented in volar deviation, with 60° of interfragmentary angulation and shortening of 10 mm and an extension deficit of 15° at the metacarpo-phalangeal joint. The patient is otherwise healthy.

Treatment. The patient underwent conservative treatment in a short arm cast for 4 weeks, followed by open corrective osteotomy and plate fixation utilizing a dorsal approach, with further immobilization in intrinsic plus for 2 weeks. After stitch removal, the patients started early passive self-directed physical therapy for 2 weeks, followed by active physical therapy for 4 weeks.

Outcome. At 8 weeks follow-up, the patient is pain free, actively extends the 4th finger with 5° of deficit and is currently following an aggressive active physical therapy protocol.

Discussion. Surgical fixation, whether open or percutaneous is indicated for stabilizing metacarpal head fractures. Conservative treatment applied for such fracture patterns is often associated with dissatisfactory outcomes and should be avoided. Aggressive physical therapy is mandatory if optimal functional outcomes are expected.

Keywords: metacarpal; range of motion; correction osteotomy; plate fixation.

CASE REPORT: SECONDARY UPPER LIMB NEUROPATHY IN A PATIENT PRESENTING WITH MULTIPLE LEVEL MEDIAN NERVE COMPRESSION

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Background. Compression neuropathy is clinically represented by pain in the region the nerve branches. Thorough clinical examination backed (if need be) by imagistic and neurophysiologic studies are essential for diagnosing de level of compression, the prevalence of secondary neuropathy increases in patients suffering from metabolic disease, making the differential diagnosis harder.

Case presentation. In February 2015, a 58 years old female presented in the ambulatory clinic for bilateral upper limb pain, exacerbated with neck rotation and forward flexion. The patient undergoes hemodialysis each other day for end stage kidney disease and has previously benefited from posterior interbody fusion for L3-L4 lumbar discus herniation. Cervical spine MRI was positive for bilateral C5-C6 root compression.

Treatment. Anterior cervical discectomy and fusion was performed with immediate although mild improvement in pain radiating distally from the wrists. At 12 weeks postoperative follow-up and after subsequent investigation, the patient underwent bilateral carpal tunnel release associated with a favorable outcome.

Outcome. The neuropathy had resolved after surgically addressing the multiple levels of nerve compression.

Discussion. Multiple level nerve compression proves diagnosis and treatment can be at times, challenging. Faced with neuropathy, the level(s) must be identified in order to efficiently treat and improve patient satisfaction.

Keywords: compression radiculopathy; ACDF - anterior cervical discectomy and fusion; compression neuropathy.

CASE REPORT: REFRACTORY ANKLE FRACTURE NON-UNION AFTER AGGRESSIVE TREATMENT IN AN INCOMPLIANT, DIABETIC PATIENT

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Background. Fracture around the ankle are notorious for minimal healing response to adequate treatment. When confronted with underlying pathology such as poorly controlled diabetes mellitus, circulatory insufficiency and diabetic neuropathy, treatment becomes at its best challenging if not futile.

Case presentation. In September 2014, a 61 years old male presented in the ambulatory clinic for diffuse ankle pain secondary to a fracture of the distal third of the peroneus and tibio-talar subluxation. Aside type 2 diabetes mellitus, the patient had a normal check-up. The patient neglected orthopedic treatment and returned in December, when a pneumatic walking boot was recommended which the patient wore but without inflating. The patient was later scheduled for surgery of the peroneal fracture-nonunion and the tibio-talar subluxation.

Treatment. The patient underwent open reduction and internal fixation (tibio-talar arthrodesis with the use of a retrograde centromedullary nail) and was taught on how to use the pneumatic walking boot. At 2 months check-up the patient presented with broken distal screws and pain – signs of full-weight bearing. The patient underwent 4 further surgeries, mainly for extraction of broken screws.

Outcome. At 20 months follow-up, the patient presents with diffuse pain, no radiographic sign of consolidation and walking with full weight bearing using the pneumatic walking boot - inflated.

Discussion. Surgical fracture fixation is gold-standard in the management of ankle arthritis, although secondary failure due to poor patient self-management and associated systemic pathology is predictable.

Keywords: diabetes; ankle fracture; arthrodesis; centromedullary fixation.

REHABILITATION IN POSTOPERATIVE STIFFNESS AFTER SURGICAL TREATMENT OF WRIST FRACTURES

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Objectives. To establish the time needed for the wrist fractures rehabilitation, depending on associated lesions. To conceive efficient rehabilitation programs, depending on the complexity of the wrist injury, in order to prevent or treat the stiffness of the hand. To assess the patient's injury evolution

Materials and methods. 46 cases were selected which presented wrist fractures. The rehabilitation programs were conceived according to the associated lesions, therapeutically attitude, surgical particularities, post-surgery evolution and immobilization period. The main goal was to prevent or treat the wrist stiffness. The rehabilitation protocols had 3 stages: early phase (0-3 weeks), middle phase (3-6 weeks) and late phase (6-8 weeks). The evaluation process was performed at 3 weeks, 6 weeks and 2 month using flexibility tests and muscle strength testing.

Results. The main differences between the rehabilitation programs were the period of immobilization and the intensity of the rehabilitation program depending on the associated lesions. The results of the assessment increased at 2 month compared to 6 and 3 weeks assessment.

Conclusions. Because of the hand's propensity to quickly form a permanent stiffness, the rehabilitation program has to start as early as possible. Failure to use early range of motion will result in a stiff wrist and hand with poor function regardless of radiographic bony healing. Rehabilitation after wrist fractures focuses first on preventing a problem with the wrist from creating a problem with the hand, second on restoring functional mobility quickly and finally on optimizing the function of the wrist after the injury.

Keywords: stiffness, wrist fractures, rehabilitation, immobilization.

FUNCTIONAL INTEGRATION OF THE FREE TRANSFERRED TOES IN POSTTRAUMATIC HAND RECONSTRUCTIONS

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Objectives. Reconstruction of the thumb and complex hand mutilations with fingers amputation are best solved by microsurgical transferring toes. Transferred toes-to-hand will be innervated much better than they were in the donor site, performance explained by both the higher number of nerve fibers in the digital nerves of the hand compared to the toes and by cortex plasticity. Such phenomena occurring in cortical integration of the microsurgical transferred toes-to-hand is comparable to that following the digital nerve repair or replantation.

Material and methods. We performed 25 transferred toe-to-hand cases operated between 1998 to 2013 in which 8 great toe transfers (2 wraparound), 12 transfers of second toe and 5 transfers of second and third toes. Time interval from injury to reconstruction was 5-19 months from accident and respectively 9 years for a single case of amputation in childhood. Indications of toes transfer were based on the level of amputation after Merle. Assessment of the toe-to-hand cortical reintegration was made according to Medical Research Council for motor (M0-M5) and sensitive (S0-S4) recovery at every 6 months, 1, 2 and 3 years. 12 patients were followed-up at longer intervals of time (5-11 years). To assess recovery of sensitivity we also conducted qualitative and quantitative tests (*Semmes - Weinstein, Dellon test*).

Results. After evaluation of the 2PD, patients interval results were: 6-8 mm (4), 9-12 mm (15) 13-16 mm (4) and in 2 patients >16mm. Functional reintegration of the thumb reconstructed by wraparound process (Morison technique) offers the best cosmetic result (6-8mm), because the reconstructed thumb has dimensions very close to those of the normal thumb. In thumb reconstruction, functional recovery after Kapandji scale was 7-8 and in wraparound technique was 9-10. Despite the unsightly appearance, motor recovery of the toe-to-hand offered patients the possibilities to use of the mutilated hand.

Conclusion. Reconstruction of the mutilated hand by toe-to-hand transfer is a technique that provides better result if sustained by motor and sensory physiotherapy. Re-innervated by digital nerve fibers of the hand the toe pulp can achieve a smooth tactile perception.

LAYERED COMPRESSION SYNDROME: CONCOMITANT SURGICAL APPROACH OF THE ULNAR NERVE AT ELBOW AND GUYON'S TUNNEL

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Objective. The choice of surgical treatment correlated with the severity of ulnar neuropathy. Selection of cases which require concomitant surgical approach at elbow(E) and Guyon's tunnel(G) ulnar nerve (UN) release based on clinical examination and electrodiagnostic criteria.

Methods. Between 2010-2015, 168 patients aged 27-71 were treated for ulnar nerve neuropathy, 50 (29.76%) patients with E, 75 (44.64%) patients with EG and 50 (29.7%) patients with Guyon's canal and carpal tunnel (GC). All the patients presented with clinical findings which correlated with electrodiagnostic studies: the presence of compound muscle action potentials (CMAPs) which are of good amplitude even if low conduction velocities are present suggest the need for concomitant decompression of UN at EG. Nonoperative management of mild compression with ergonomics and night splints for 3-6 months avoiding flexion of the elbow. Operative management of moderate and severe compressions. For cubital tunnel we proceeded with an ulnar release at the elbow with subcutaneous anterior UN transposition; Guyon's canal release, isolation of sensory and deep motor branch, which can be compressed by the thumb adductor observed in 80 (47.61%) of patients. Patients with Guyon tunnel were of II-III rd degree McGowan. Decompression of both nerves was done thru a singular surgical approach. Both objective and subjective evaluation (grip strength, pinch strength, Quick DASH score and static two points discrimination) was done.

Results. In follow-up (clinically and by electrodiagnostic) at 3, 6 months, 1 year follow-up in only 65 (38.7%) of patients, 30 patients (17.85%) with EG, motor and sensory recovery with very good results in 93% of cases. We found an improvement an average for grip strength from 56% to 87% of unaffected side, pinch strength from 54% to 82%, Quick Dash score from 63.63 to 15.3% and 2PD from 9.6 mm to 7 mm. Only 12 patients with advanced intrinsic hypotrophy preoperatively recovered with poor results. The association EG, although in small number, is a clear statement of double crush syndrome.

Conclusions. EG compression is a common clinical entity with 44.64% of cases requiring concomitant release. Presence of the clinical signs associated with CMAPs of good amplitude and low conduction velocities advice for surgical treatment. The selection of cases based on clinical and electrodiagnostic criteria guide the surgeon to perform when needed the layered elbow and Guyon tunnel release.

NAIL PHALANX RECONSTRUCTION AFTER BONE TUMORS RESECTIONS

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Objective. Long term outcome assessment after resection and reconstruction of the bone and nail bed for distal phalanx (DP) tumors.

Aim. Bone grafts integration and DIPJ mobility, force tip pinch thumb–long finger and sensitivity of the pulp (2PD), Quick DASH score for hand functionality and tinfoil nail splint effectiveness to recover the aesthetic appearance.

Methods. Between 2000-2015 we operated 43 benign phalangeal bone tumors: 20 (P1 and P2) and 23 DP. Principles of surgical treatment in tumors of DP: 1) complete excision - preventing relapse; 2) reconstruction of the phalanx length - maintaining joint biomechanics; 3) preserving the functional and/or reconstruction of flexor tendons and extensor apparatus; 4) avoid digital nerve damage and pulpar scars; 5) aesthetic preservation of the nail and pulp. Histological examination in all cases: 7 enchondroma, 6 glomus tumor, 4 aneurysmal bone cyst, 4 epidermoid cyst, 1 osteoma osteoid and 1 giant cels tumor. The fish mouth surgical approach in cases with tumors at or towards pulp and transungual in cases with nail deformity and swelling of DP. Bone curettage performed in cases with small bone lytic lesions and cortex expansion and partial or complete amputation at the DP with bone graft (BG) (1 half P3 and 2 cases whole phalanx with DIPJ arthrodesis) and nail matrix reconstruction in geographic lytic lesions. We used the tinfoil nail splint for nailbed recovery. The amount of BG (distal epiphysis of the radius) was determined preoperatively by imagistic 3D reconstruction. All patients followed a physical therapy program evaluated by force pinch, 2 PD, DIP joint mobility and Quick DASH score. Follow-up at 3, 9, 12 and 36 months.

Results. Complete graft integration in all cases. Force pinch evaluation in 23 cases: 17 very good, 2 good results and 3 (BG cases) satisfactory results. Normal pulp sensibility 8-10 mm 2PD without cold intolerance for tumors developed at or towards the pulp. Quick DASH score improved from 63.6 to 15.9. DIP mobility increased from 10 degrees to 33 degrees. Well preservation of the nail form and pulp in 17 cases and in 2 cases longitudinal striae were present. 3 cases (one case half P3 and in 2 cases whole phalanx) presented nail irregularities despite using a nail splint- unsatisfactory aesthetic results. No recurrence after 3 years follow up.

Conclusions. We consider that the quality of the final result depends on preserving the nail bed, dorsal cortical portion and the base phalanx joint, followed by anatomic reconstruction with well fitted BG determined by imagistic 3D examination.

CORTICAL INTEGRATION OF THE FREE TRANSFERRED TOES IN POSTTRAUMATIC HAND RECONSTRUCTION

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Objectives. Reconstruction of the thumb and complex hand mutilations with fingers amputation are best solved by microsurgical transferring toes. Transferred toes-to-hand will be innervated much better than they were in the donor site, performance explained by both the higher number of nerve fibers in the digital nerves of the hand compared to the toes and by cortex plasticity. Such phenomena occurring in cortical integration of the microsurgical transferred toes-to-hand is comparable to that following the digital nerve repair or replantation.

Material and methods. We performed 25 transferred toe-to-hand cases operated between 1998 to 2013 in which 8 great toe transfers (2 wraparound), 12 transfers of second toe and 5 transfers of second and third toes. Time interval from injury to reconstruction was 5-19 months from accident and respectively 9 years for a single case of amputation in childhood. Indications of toes transfer were based on the level of amputation after Merle. Assessment of the toe-to-hand cortical reintegration was made according to Medical Research Council for motor (M0-M5) and sensitive (S0-S4) recovery at every 6 months, 1, 2 and 3 years. 12 patients were followed-up at longer intervals of time (5-11 years). To assess recovery of sensitivity we also conducted qualitative and quantitative tests (Semmes - Weinstein, Dellon test).

Results. After evaluation of the 2PD, patients interval results were: 6-8 mm (4), 9-12 mm (15) 13-16 mm (4) and in 2 patients >16 mm. Functional reintegration of the thumb reconstructed by wraparound process (Morison technique) offers the best cosmetic result (6-8 mm), because the reconstructed thumb has dimensions very close to those of the normal thumb. In thumb reconstruction, functional recovery after Kapandji scale was 7-8 and in wraparound technique was 9-10. Despite the unsightly appearance, motor recovery of the toe-to-hand offered patients the possibilities to use of the mutilated hand.

Conclusion. Reconstruction of the mutilated hand by toe-to-hand transfer is a technique that provides better result if sustained by motor and sensory physiotherapy. Reinnervated by digital nerve fibers of the hand the toe pulp can achieve a smooth tactile perception.

NERVE TRANSFERS FOR RESTORING ELBOW FLEXION IN BRACHIAL PLEXUS PALSY

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Objective. Nerve transfers (NT) consists in sectioning a donor nerve and connecting it to the distal stump of a recipient irreparable nerve. For elbow flexion restoration in brachial plexus palsy (BPP) we used different NT: the phrenic nerve (PhN), the intercostal nerves (ICN) and Oberlin's technique. The aim of this retrospective study is to evaluate the results of this procedure in BPP.

Methods. From 78 BPP, in 21 were used ICN (17 biceps and 4 triceps) and in 7 was used Oberlin technique and in 3 was PhNT. In six cases we used different association of NT and combined neurotizations: neuro-neuronal-neurotizization (NNN) and direct deuro-muscular neurotizization (DNMN). Combined neurotizization in 2 cases: medial pectoral (MPN) to musculocutaneous nerve (MCN) + DNMN with intercostal nerves (ICN) to Biceps. In 3 cases we used double NT: PhN associated with spinal nerve (SN) to MCN and ulnar nerve in 2 cases; one case we used a long sural nerve graft –SNG - (bypass) PhN to MCN. In one case we used NNN + DNMN: NNN by SNG using C3+C4 + SN to MCN and DNMN to Biceps. Patients were reviewed at 6, 12 and 36 months postoperatively. The mean age of the patients was 29 years. The average posttraumatic interval prior to surgery was 6-9 months. Muscular re-innervation was evaluated according to BMRC scale.

Results. The averaged time required for biceps reinnervation was 12–14 months after ICNT and 8-9 months after PhNT; for triceps was 9 months after ICNT and in Oberlin technique was 4-6 months. After Oberlin technique was no motor or sensory deficit related to the ulnar nerve. After ICNT to biceps, 12 patients achieved M3-M4 elbow flexion, 3 patients with M1-M2 and 2, M0. For triceps, two patients achieved M3-M4 elbow extension – to which we performed Carroll transposition for elbow flexion recovery - one M1-M2 and 1 M0. Of the 7 patients with Oberlin technique, 5 achieved M4, one M3 and one M1-2. After PhNT associated with SN recovered biceps function at M2–M3 in 2 cases and a poor result (M1) with singular NT (PhN to MCN) by SNG.

Conclusions. NT is an important goal in BPP. ICNT into the nerve of biceps for elbow flexion recovery is a reliable procedure in BPP. ICNT for triceps offers a positive alternative (Carroll transposition). Combined neurotizization NNN + DNMN and double NT association improved results. Oberlin technique is simple and offers a better results in short time and is an effective and safe option.

Keywords: brachial plexus palsy, nerve transfer, microsurgical procedures, upper extremity function.

CONCOMITANT SURGICAL APPROACH OF THE ULNAR NERVE AT ELBOW AND GUYON'S TUNNEL IN LAYERED COMPRESSION SYNDROME

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Objective. The choice of surgical treatment correlated with the severity of ulnar neuropathy. Selection of cases which require concomitant surgical approach at elbow (E) and Guyon's tunnel (G) ulnar nerve (UN) release based on clinical examination and electrodiagnostic criteria.

Methods. Between 2010-2015, 168 patients aged 27-71 were treated for ulnar nerve neuropathy, 50 (29.76%) patients with E, 75 (44.64%) patients with EG and 50 (29.7%) patients with Guyon's canal and carpal tunnel (GC). All the patients presented with clinical findings which correlated with electrodiagnostic studies: the presence of compound muscle action potentials (CMAPs) which are of good amplitude even if low conduction velocities are present suggest the need for concomitant decompression of UN at EG. Nonoperative management of mild compression with ergonomics and night splints for 3-6 months avoiding flexion of the elbow. Operative management of moderate and severe compressions. For cubital tunnel we proceeded with an ulnar release at the elbow with subcutaneous anterior UN transposition; Guyon's canal release, isolation of sensory and deep motor branch, which can be compressed by the thumb adductor observed in 80 (47.61%) of patients. Patients with Guyon tunnel were of II-III rd degree McGowan. Decompression of both nerves was done thru a singular surgical approach. Both objective and subjective evaluation (grip strength, pinch strength, Quick DASH score and static two points discrimination) was done.

Results. In follow-up (clinically and by electrodiagnostic) at 3, 6 months, 1 year follow-up in only 65 (38.7%) of patients, 30 patients (17.85%) with EG, motor and sensory recovery with very good results in 93 % of cases. We found an improvement an average for grip strength from 56% to 87% of unaffected side, pinch strength from 54% to 82%, Quick Dash score from 63.63 to 15.3% and 2PD from 9.6 mm to 7 mm. Only 12 patients with advanced intrinsic hypotrophy preoperatively recovered with poor results. The association EG, although in small number, is a clear statement of double crush syndrome.

Conclusions. EG compression is a common clinical entity with 44.64% of cases requiring concomitant release. Presence of the clinical signs associated with CMAPs of good amplitude and low conduction velocities advice for surgical treatment. The selection of cases based on clinical and electrodiagnostic criteria guide the surgeon to perform when needed the layered elbow and Guyon tunnel release.

ADVANTAGES OF MODULAR RADIAL HEAD PROSTHESIS USE IN HIGHLY COMMUNUTED FRACTURES

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Purpose. This article aims to evaluate the results and outcomes of patients with highly comminuted radial head fractures, Mason III / IV type, treated surgically by arthroplasty with a cemented modular radial head prosthesis.

Material and methods. Between 2011 and 2016, 18 patients aged between 18 and 60 years at the date of the injury were surgically or nonoperative treated for radial head fractures, with varying degrees of comminution, suffered of medium and high energy trauma.

Fifteen patients underwent surgery for comminuted radial head fractures, and in 8 of these cases a radial head prosthesis was required. All participants were followed up to 36 months postsurgery. A final review was carried out at 12-36 months after surgery when clinical, functional and imagistic assessment was performed.

Results. All patients were available for consultations and reassessment. Radiologically there were no problems noticed regarding the implant position or stability. Functional results were very good, stability and ROM data obtained were within normal limits. All patients were satisfied with their elbow joint mobility.

Conclusion. Surgical treatment using modular radial head prosthesis offered excellent results, the elbow mobility being in the normal range and patients requiring a short period of recovery to achieve these parameters.

IMPROVING THE TREATMENT OF OPEN ANKLE FRACTURES WITH SOFT TISSUE DEFECTS

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Background. The management of open ankle fractures with soft tissue damage are still challenging and remain controversial nowadays. Primary internal or external fixation?, flaps or negative pressure wound therapy?, are some of questions which are requiring explanation. The purpose of this work is to determinate the clinical outcomes of staged treatment using external fixation and flaps in first stage, and internal fixation in second stage, for open ankle fractures with soft tissue defects.

Materials and methods. We included in our work 15 patients with open ankle fractures and soft tissue defects, treated within last 3 years (2014-2016). 11 men and 4 women aged from 22 to 71 years, mean 54.5 years. 4 patients were with diabetes mellitus, 5 were politraumatized with craniocerebral associated trauma. Gustilo-Anderson II in 2 cases, IIIA in 5 cases and IIIB in 8 cases. The primare external fixation was done in Ilizarov fixator 8 cases, other external fixators 7 cases. Coverage by sural flaps in 7 cases, propeller perforator flaps in 4 cases, corticoperiosteal flaps in 2 cases, free flaps in 2 cases. All flaps and external fixations were done within first 72 hours after injury. Conversions of external to open internal fixations were performed after 13 – 42 days. The follow-up was 2 - 32 months.

Results. The bone consolidation was obtained between 5 and 9 months excepting 1 patient who developed a nonunion at 6 months and underwent a shortening of edges, and external fixation in Ilizarov frame. All flaps survived, marginal necrosis was noticed in 3 cases, venous congestion in 2 cases. Deep infection in 1 case and pin site infection in 3 cases. The weight-bearing was resumed after 2-3 months. The outcome was evaluated by means of the American Orthopedic Foot and Ankle Score (AOFAS), being between 45/100 and 85/100 points, mean 74 points.

Conclusions. We consider the staged technique of treatment, the most suitable and acceptable, permitting to decrease the amount of perioperative and late complications. The fast external fixation and local flaps allow intensive care, especially for critical politraumatized patients. After stabilization of the general state of the patient, the conversion to internal fixation can be done out of danger. As inconveniences can be mentioned: long term hospitalization, pin retractor infections or a delay of bone consolidation which can be also excluded by an adequate postoperative care and patient compliance.

Keywords: open ankle fractures, ankle defects, ankle staged osteosynthesis, ankle flaps.

RADIAL FOREARM FREE FLAP FOR PENILE RECONSTRUCTION – A CASE REPORT

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Introduction. Beside functional disability, penile loss associates psychosocial distress, a poor self-esteem and quality of life. Radial forearm free flap (RFFF) it has become the primary option for phalloplasty for most reconstructive surgeons. The aim of the presentation is to bring into focus a phallus reconstruction using RFFF after penile amputation.

Materials and methods. We present a case of a seropositive male patient who came to our clinic with a residual phallus after aggressive penile amputation. RFFF was chosen as the best therapeutic option for our patient.

Results. Harvesting of the RFFF from the right limb involved finding and dissecting the cutaneous medial and lateral antebrachial nerves, radial arterial and vein. The phallo-urethroplasty was performed by rolling the flap in tube-within-a-tube fashion and the glans was also reconstructed using the technique described by Horton. The radial vessels were microsurgical anastomosed to inferior epigastric vessels and antebrachial nerves to pudendal nerves of the residual phallus. The postoperative complications were fistulas development and hair growth within the neourethra, nevertheless both were managed with success.

Conclusion. Radial forearm free flap for penile reconstruction proved to be a reliable choice, which brought a normal appearing phallus, allowed voiding while standing for our patient and restarting sexual activity.

Keywords: radial forearm free flap, penile amputation.

A SPECIAL CASE OF FREE FUNCTIONAL MUSCLE TRANSFER OF UPPER LIMB USING LATISSIMUS DORSI AND GRACILIS MUSCLES

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Objective. The aim of the presentation is to bring into focus a multistep reconstruction plan for brachial plexus injury with associated muscle loss.

Material and methods. We present male patient treated in our clinic for recovering the functionality of upper limb after trauma induced paralysis. It was performed two free functional muscle transfers, latissimus dorsi and gracilis muscle.

Results. The patient came to our clinic with total upper limb functional impotence after trauma. Initially the limb was revascularized using a venous graft to substitute the defect of brachial artery. The first step involved the restoration of elbow flexion using the latissimus dorsi muscle. Further, the second step supposed recovery of the fingers flexion by anastomosing in a termino-terminal fashion the gracilis muscle to an intramuscular branch of toracho-dorsal nerve.

Conclusion. We succeeded to restore the functionality of upper limb using two free functional muscle transfers, latissimus dorsi and gracilis muscle.

Keywords: free functional muscle transfer, latissimus dorsi, gracilis.

A SPECIAL CASE OF UPPER LIMB FUNCTION RESTORATION USING RETROGRADE VASCULARIZED ULNAR NERVE TRANSPOSITION AND GRACILIS MUSCLE AS FREE FUNCTIONAL MUSCLE TRANSFER

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Objective. The aim of the presentation is to highlight that vascularized ulnar nerve transposition and free functional muscle transfer (FFMT) can solve the upper limb dysfunctionality by bringing a viable muscle, while other nervous reconstructive techniques failed to restore the function.

Materials and methods. We present a case of brachial plexus injury where the flexion of elbow was restored using the ipsilateral ulnar nerve transposition and gracilis muscle.

Results. The first surgical intervention supposed dissection of the ipsilateral vascularized ulnar nerve and its transposition at contralateral C7 nerve root. In the second surgery was proceed a FFMT with gracilis muscle using positive Tinel sign as a marker of axonal regrowth to affected upper limb.

Conclusion. For patients with unsatisfactory results after primary nerve reconstruction, or in cases of denervation more than one year, the technique of vascularized ulnar nerve retrograde transposition and free functional gracilis muscle transfer is a reliable option in reconstruction of disabled upper limb.

Keywords: vascularized ulnar nerve graft, gracilis muscle.

MIGRATION OF FIBULA AT THE EDGE OF POSSIBLE: RISKS AND COMPLICATIONS

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Purpose. To present our experience of proximal and distal migration of the island osseous fibular flap.

Material and methods. The work include presentation of a 2 clinical cases.

Clinical case no. 1: male, 31 years old, presented in our clinic with a septic process of distal femur, partial defect of femoral bone and fracture of pathologic bone at meta diaphyseal distal level. According to anamnesis, he underwent 6 surgeries with evolutive sequesterectomies, for recovery of septic outbreak. Clinical case no. 2: male, 43 years old, after a fall from height gets open fractures of both calcaneus. At 5 months after trauma, he is admitted with vicious consolidated fractures, calcaneal osteitis and plantar soft tissues defects with exposure of bones. For recovery of femoral defect, we harvested a osseous fibular flap, migrated by “rolling” it to defect’s level, distal edge of bone graft arriving to medium third of femoral bone (22 cm above knee joint). Migration was performed based on fibular and tibial posterior vessels, calf being vascularized by tibial anterior vessels. For solving osseous calcaneal deffect we migrated a island fibular flap based on peroneal arteries, flap being passed under Achilles tendon to plantar surface of calcaneus.

Results. In clinical case no. 1, at 2 years follow-up, we obtained a permanent remission of septic outbreak, restoration of function in knee joint and restoring the patient in labor. In clinical case no. 2, at 1 year after surgery we obtained a total regeneration with consolidation of fibular graft to calcanei and left astragal bone and taking over the walk on both feet without any support.

Conclusion. Fibular flap represents a good quality osseous vascularized, mass, which being migrated allows to offset bone defects beyond calf’s limits, with a low rate of complications, even in the presence of infection.

Keywords: fibular flap, migration, risk, complication.

ISLAND GLUTEAL FLAPS: ADVANTAGES, DISADVANTAGES, EMBODIMENT OF USE

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Purpose. To present different examples of use of gluteal flap based on clinical cases treated during period of time 2011-2016 year.

Material and methods. In study were included 25 patients. Flaps were harvested based on our method. We simplified the preparation method, harvesting flap based on proximal fascio-adipous pedicle, that allows to preserve sensibility of transferred tissues by clunium nerves, vascularization being provided by vascular relations from the hypodermis, between lumbar descendend and ascendant vessels of gluteal vessels. Age limits was between 18 and 70 years. Gender distribution was: male - 20 patients, females – 5 patients, with various localization of the defect: gluteal area - 4 cases, sacral area without bone involvement – 10 cases, sacral area with bone involvement - 8 cases, trochanteric area - 3 cases. Defect's etiology: post radiotherapy in oncological patients - 3 cases, pressure sores in plegic patients - 13 cases, pressure sores in patients with pelvic fractures - 6 cases, post excisional defects- 3 cases. We used 8 bilateral flaps and 17 unilateral flaps to reconstruct defects areas. In immediate postoperative period all patients had bed regime for 10 days, and prone position for 45 days postoperative. Complications: partial necrosis of flaps – 4 cases and postoperative infection – 1 case.

Results. In 20 patients was total integration of the flap with a recovery period of 45 days. From 5 cases with complications, in 1 case we performed 2 repeated surgeries for removal of septic complications, so recovery period lasted 90 days.

Conclusion. Various options of intraoperative prefabrication of gluteal flaps allows to recover extended tissues defects from sacral, gluteal and trochanteric area.

Keywords: gluteal flap, embodiment of use, pedicle.

PLASTIC SURGERIES ASSOCIATED TO ILLIZAROV BONE TRANSPORT TECHNIQUE

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Aim. Evaluate the outcome in treatment of the tibial bone defects by Ilizarov bone transport technique associated with plastic surgery.

Material and methods. The study included 65 patients, from whom 59 men and six women, aged between 20 and 67 years. From the total group of patients, 42 suffered after car accidents, catatraumatism-14 patients, 4 patients after habitual- trauma, 8 patients accidents at work, and 2 patients after gun fire. Tibial bone defects and skin defects were located at the distal end - in 41 cases (63.1%), followed by diaphysis- in 21 cases (32.3%), and the proximal end- in 3 cases (4.6%). All patients benefited of reconstruction of the tissue defects. We used 34 island flaps, 3 microsurgical free flaps and 28 cases plasty with split skin grafts.

Results. Varied the dimensions of the circular defect, from 5 cm to 21 cm. It has been a better postoperative evolution (faster consolidation) at patients who benefited of plasty flaps than at those with split skin grafts.

Conclusions. Ilizarov technique bone transplant is a method, based on circular bone defects and traumatic manifestation, such as soft tissue defects that can be solved by pedicle flap plasty, free flaps and split skin grafts.

Keywords: Ilizarov frame, bone defects, leg soft tissue defects.

FIBULAR FLAP IN RECONSTRUCTION OF THE BONE DEFECT THAT REMAINED AFTER ABLATION OF THE TOTAL KNEE PROSTHESIS

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The purpose of the work. Presenting a solved case of bone defect, that occurred after ablation of the total knee prosthesis complicated septic in an oncology patient.

Materials and methods. This work presents the clinical case of a woman of 30 years, who was diagnosed in 2009 with osteoclastoma in 1/3 of the distal femur operated in the same year in the Oncology Institute, was removed the tumor and underwent total knee joint prosthesis placement, at the end of 2015 at our clinic addressed with an septic area at pelvic right limb. After performing preoperative planning, I decided to solve in 2 surgery stage. At the first stage we performed ablation of the prosthesis. In another step we made the right knee joint arthrodesis with an vascularized fibular flap. Bone transplantation with a length of 20 cm with a pedicle of 10 cm, that was migrated through rollover technique that in its structure entered a muscular sleeve and skin island for future monitoring. At the end, the leg was stabilized in an external extrafocal device. After 4 months later, at a follow-up visit, the patient moves independently, using crutches and moderate support on the foot.

Conclusions. Using a composite musculoskeletal cutaneous vascular defect axially allow reconstruction complicated septic at pelvic limb without following the required period.

Keywords: fibula, flap, bone, transplantation.

THE TREATMENT OF INFECTED BONE CAVITIES BY ISLAND MUSCULAR FLAPS

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Background. Bone cavities often are a constant source of infection and the main factor responsible for periodic fistulation. The calf, by its anatomical specificity, is marked by bone infections «hidden» inside the tibia. Only antibiotic therapy doesn't combat microbial aggression. The purpose of this work is to highlight the utility of island flap based on big vessels for filling cavities of tubular bones with axial vascularized muscular tissue.

Materials and methods. We studied a case series of 14 patients, who underwent 16 muscular flaps for filling of different bone defects in lower limb, performed in last 2 years (2015 - 2016). Aged from 19 to 65 years (with a mean 41 years), 10 men and 4 women. Our proposal is to identify perforating veins from its main lines and forming, based on them, total discontinued muscle island flaps from donor muscle, except vascular pedicle. Thus the formed flap cannot be snatched away from recipient site by moving muscle's traction and paves well the bone cavity with vascularized tissue.

Results. All flaps survived, according our experience this flap proves to be very useful and safe.

Neither partial nor marginal necrosis was noticed. We have only 14 patients who have reached three years after application of described surgical technique and being examined, we found at all that the infectious process was in a sustainable remission.

Conclusions. Muscular flaps based on perforator vessels are maneuverable and offer well vascularized tissue for filling infected bone cavities. Among the disadvantages of mentioned methods are unable to perform a sufficient pavement of cavities and presence of a mechanical muscle connection with donor muscle remained in motion.

Keyword: bone infection, bone defect, muscular flap, island flap.

CLOSED FRACTURES OF THE FOREARM

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Background and aims. The complex anatomy of the forearm, based on a specific relationship between radius and ulna is critical for pronation and supination. Malunited fractures will strongly affect the forearm function, recently called a “functional joint”. It is important to re-establish length, alignment, and rotation for the forearm to maintain its dynamic function [1,2,3].

The purpose of this article is to evaluate the results obtained from surgical treatment of closed forearm fractures, in terms of fracture consolidation and forearm function.

Methods. The study was conducted retrospectively on a total of 121 patients admitted between January 2015 to October 2016 in the Orthopedics and Traumatology University Clinic of Cluj-Napoca. We included in the study shaft fractures of both forearm bones. Isolated shaft fractures of forearm bones, Monteggia fractures, Galeazzi fractures were excluded from the study. All fractures were treated operatively (open reduction and internal fixation with limited-contact dynamic compression 3.5-mm plates).

All patients followed the same rehabilitation protocol, range-of-motion exercises started at 5-7 days after the intervention, avoiding heavy lifting until fracture consolidation. Splinting was used if the internal fixation was questionable. The evaluation of patients was performed considering the radiological outcome, range of motion of the adjacent joints, forearm dynamic function, presence of pain or other disability at three and six months after surgery.

Results. The radiological consolidation appeared after a mean of 8.7 weeks. Forearm pronation and supination were restored at three months after surgery for most of the patients. Three patients developed a haematoma after surgery, one patient was re-operated for loss of fixation at two months, four patients were treated for nonunion of the radius. We did not encounter any major complication intra or postoperatively.

Conclusions. Functional results of open reduction and internal fixation of closed forearm fractures are very good at three months after surgery for most patients with few complications encountered.

Keywords: forearm fractures, radius shaft fractures, ulnar shaft fractures.

UPPER LIMB CHONDROMAS - CLINICAL AND THERAPEUTIC ASPECTS - A REVIEW OF THE CURRENT LITERATURES

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Objectives. Chondroma is a benign bone tumor that represents approximately 15% of the total benign tumors and 4.5% of total tumors. However, the true incidence of chondromas is not known because they are usually asymptomatic.

Our main goal is to observe the best methods of diagnosis and treatment for those tumors.

Methods. In the current literature there are described two types of chondromas: one that arises from the intramedullary canal, it is more common and is referred as “enchondromas”, and a much more rare type “periosteal chondromas” which arises from the surface of the bone. Multiple chondromas are associated with Ollier disease and Maffucci syndrome.

This hyaline cartilage tumor appears most frequently in the phalanges of the hand but any bone can be affected. The incidence is equally distributed throughout all decades of life, but the majority of patients who required surgery were in the first two decades of life.

Mostly, the chondromas of the upper limb are an incidental finding after a simple radiography. They are usually asymptomatic, but may be complicated by a pathological fracture or malignant transformation into a low-grade chondrosarcoma. An important aspect is that a chondroma is painful without the existence of a fracture it must be considered malignant.

The treatment for this condition can be named as “watchful waiting” with a serial of radiographs, if the radiographs remain unmodified there is no need for further intervention but if the lesion become symptomatic and changes appear on radiography surgical treatment is indicated.

Results. Chondroma is a benign tumor composed of mature hyaline cartilage, which replaces the normal bone, and is usually asymptomatic.

Chondroma is by far the most common tumor of the small bones of the hands. Surgical treatment is mostly used for patients in first 2 decades of life.

Conclusions. The first symptoms of this tumor can appear because a pathological fracture or because a malignant transformation. It can be diagnosed after a simple radiography. The standard treatment for this condition is “watchful waiting”

Keywords: chondroma, upper limb, benign, watchful waiting.

THE PECULIARITIES OF THE ULTRASONOGRAPHIC INDICES OF MEDIAN NERVE AND HISTOLOGICAL CHANGES IN THE TRANSVERSE ANTERIOR LIGAMENT OF THE CARPUS IN THE CARPAL TUNNEL SYNDROME

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Objective. The clinical evaluation in patients with carpal tunnel syndrome in association with traumatic etiology on the ultrasonographic indices of median nerve and histological changes in anterior transversal ligament of the carpus (aTLC).

Methods. We have proposed a study of patients with carpal tunnel syndrome (CTS) which were in treatment in 6 Section of Traumatology and Orthopedics Clinical Hospital, Chisinau in the 2011-2016. All patients present clinic of carpal tunnel syndrome unilateral, and were examined by ultrasound studies both wrists, determining the difference of sizes of median nerve in vertical plane and calculate the narrowing percentage of the median nerve in the region of entrapment (N%MN, %). All results were presented as mean \pm standard deviation (\pm SD).

Results. We proposed analysis of 60 cases that were divided in four groups: I group carpal tunnel syndrome unilateral without traumatic etiology – 20 (33.3%) patients; II group carpal tunnel syndrome in association with traumatic etiology– 40 (66.66%) patients. We established these trends, from 60 patients, 24 (40%) were male and 36 (60%) woman, the ratio right / left draw up 3,3:1,0. There was no significant difference between the ages of the CTS patients (mean 47.8 ± 11.80 yr) We found that in 20 healthy hands the USG studies show N%MN mean= $6.06\% \pm 10.80$. In according with stage of CTS in 60 hands the USG studies show N%MN mean: I: $31.57\% \pm 3.33$; II: $N\%MN \text{ mean} = 49.64\% \pm 4.51$; III: $79.59\% \pm 16.38$. Morphological studies determine 5 types of the degenerescence of the anterior ligament of the carpus: type 1 - incipient degenerescence; type 2 - fibro-conjunctival degenerescence; type 3 - fibrillary degenerescence with moderate vascular affectation; type 4 - fibrillary degenerescence with sever vascular affectation; type 5 - fibrillar fibrosis. Remote results were based on the Michigan Hand Outcome Questionnaire classified as good in 41 patients, satisfactory in 19 patients.

Conclusions. We determined that the sever morphological changes appear more early in association with traumatic etiology in aTLC. If the narrowing percentage of the median nerve in the region of entrapment N%MN is higher $6.06\% \pm 10.80$, it is suspect or confirm CTS diagnostic.

Keywords: tunnel, syndrome, ultrasonography, degenerescence, neuropathy.

TREATMENT OF INFECTED NONUNIONS OF THE TIBIA WITH TIBIAL POSTERIOR CORTICO-PERIOSTEO-CUTANEOUS PERFORATOR FLAPS

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Introduction. Treatment of leg bone defect continues to be an actual problem, especially when infection associates. Axial vascularized flaps have tolerance to infection's aggression and stimulates tissues regeneration.

Aim. To elaborate a new surgical management of septic tibial nonunion associated with soft tissue defects, which represent a challenge for traumatologist, as well as for reconstructive surgeons. Presence of infections dictates mostly of time necessity for an aggressive debridement which enlarge even more soft tissue and bone defects. In specialized literature, there are a lot of studies of different methods for treating septic nonunion of tibia by vascularized bone transfer using as donor sites fibula, ileac crest and more recent medial femoral condyle. All these surgical approaches need meticulous microsurgical techniques.

Material and methods. Our methods is based on harvesting a cortico-periosteo-cutaneous tibial posterior perforator flap which involves as well a tibial bone graft. These flaps rely on tibial posterior perforator which is determined by Doppler examination preoperatively. During 5years, from 2009 till 2014 were 16 patients successfully treated by this method (11-atrophic septic tibial nonunion and 5-hypertrophic tibial nonunion). All patients presented soft tissue defects with sizes varying from 2x1.5cm to 5x2cm. In all patients bone stability was performed with external fixators.

Results. all flaps survived. Time from reconstructive surgery to removal of external fixator and walk without crutches was between 95 to 176 days.

Conclusion. Cortico-periosteo-cutaneous tibial posterior perforator flap leads to regeneration and consolidation of septic tibial nonunion in terms characteristics for fractures.

Keywords: non-union, infected, flap, perforator.

EFFECT OF MUTUAL AGGRAVATION: CRUSH SYNDROME VERSUS DIABETES

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Aim. Transferring our experience in the treatment of crush syndrome in diabetic patients with local complications .

Material and methods. The clinical study included 4 patients with diabetes, with crush syndrome at the calf level. Inclusion criteria were: age, sex, type of diabetes, the cause that lead to crush syndrome with severe local complications. At 3 patients, complications occurred after surgery with metal plate fixation and tense suturing.

Results. In our study patients were affected by peripheral polyneuropathy, so as the postoperative period evolved without the manifestation of the violent painful syndrom. Crush syndrome at each of them was manifested only after massive muscle necrosis with infection. We succeeded in keeping at 3 patients the amputational stump at the calf level. At the last patient we saved the leg through a series of consecutive surgeries.

Conclusions. Microcirculation disturbance along with increased tissue pressure and without adequate innervation leads to extensive necrosis of soft tissues of the limb.

Keywords: crush syndrome, diabetes, leg.

CHARCOT FOOT RECONSTRUCTION: CLINICAL CASES

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Aim. Transferring our experience into treatment of Charcot pathology

Material and methods. The study included 5 patients with Charcot pathology who have undergone reconstructive surgery of the lower limb: ablation of talus and arthrodesis (2 patients), amputation in line with Pirogov method, vascularized plasty of the plantar defect with cutaneofascial flap, resection for leg modeling.

Results. The patients that have manifested arthrodesis at tibia-talus level have started walking. After performing Pirogov amputation, the patient started walkig using special footwear. The patient for whom vascularized plasty with full regeneration has been performed, started walkig using special footwear. After the centering resection of plantar bone, ulcerations have further progressed with septic manifestations, which has caused amputation at the calf level.

Conclusion. In the phase in which the foot is deformed, reconstructive surgeries lead to restoring the plantar kinetics. If the disease is neglected, the complications lead to the only surgical alternative - amputation.

Keywords: Charcot pathology; foot; amputation.

MEASURES TO RESCUE THE AMPUTATED STUMP AT CALF LEVEL, IN DIABETES COMPROMISED PERIPHERALLY

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Aim. Keeping stump amputation below the knee for improving the life quality in patients with diabetes.

Material and methods. The clinical study included 7 patients with diabetes, two women and 5 men over a period of 2 years (2014-2016), for whom the amputation of the lower leg at the calf level in the Clinic of Plastic Surgery Reconstructive and Microsurgery has been performed. Age of patients ranged from 20 years to 55 years. 5 patients were suffering from type II diabetes and 2 patients from diabetes type I. We have noticed that 3 patients were diagnosed with diabetes for more than 10 years, with noncompliance of the patient with the treatment (lack of proper diet, incorrect administration of drugs, refusal to pass from hypoglycemic drugs to insulin). Blood sugar at hospitalization was 150 mg / dl, significantly higher as compared to results obtained after surgical treatment, which demonstrates clear correlation between the presence of septic injuries and diabetes.

Results. General treatment was performed with correcting glucose and local treatment: keeping viable muscle portions, gradual closing of stump by postponed suture and wound autodermoplasty, as well as by installing for all patients the system with negative pressure.

Conclusion. Amputation stump rescue measures lead to maintaining trophicity, improving blood supply, improving functional capacity at the calf level.

Keywords: diabetes; amputation; stump.

UTILITY OF THE LATERAL SUPRAMALLEOLAR FLAP FOR RECONSTRUCTION OF ANKLE AND FOOT POSTTRAUMATIC DEFECTS

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Objective. Despite the advances in plastic surgery, soft tissue defects in the ankle and foot remain very challenging. The aim of this work was to emphasize the versatility of lateral supramalleolar flap as an alternative option in local reconstruction of a wide range of ankle and foot defects, based on the experience of our clinic.

Material and methods. We analyzed a case series of 13 patients, undergoing 14 lateral supramalleolar flaps for coverage of different defects in foot and ankle regions, performed in last 5 years (2011-2016). Aged from 18 to 72 years (with a mean 52 years), 9 men and 4 women.

The defect size ranged from 5x4 cm to 22x7 cm. All defects were posttraumatic. 3 flaps were performed within first 24 hours after injury, 2 flaps in 72 hours and 9 flaps after 72 hours. Donor site was covered primarily in 4 cases, secondarily in 10 cases. 1 patient underwent a bilateral intervention and 1 flap was done after failure of another procedure with perforator flap.

Results. All flaps survived, according our experience this flap proves to be very useful and safe.

Neither partial nor marginal necrosis was noticed. Transient venous congestion was reported in 3 cases.

The functional outcomes were evaluated using American Orthopedic Foot and Ankle Score (AOFAS).

We obtained a good score between 55 and 95 points with a mean 76.

Conclusions. In spite of some venous deficiencies, based on perforators from fibular artery and ascending supramalleolar artery, we consider the lateral supramalleolar flap a good option, providing possibility to cover much more defects than other flaps. With an appropriate local evaluation and adequate surgical technique, the number of complications could be considerably reduced. As the tissues of the flap are very thin, the esthetic aspect is much more acceptable.

Keywords: supramalleolar flap, ankle defects, lateral supramalleolar artery.

ASSOCIATED BONE AND SOFT TISSUE DEFECTS OF THE HAND SOLVED WITH VASCULARIZED BONE PLASTYS

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Aim. Comparative analysis of the vascularized plasty methods in the treatment of the hand digital rays bone defects

Material and methods. The study included 8 patients with posttraumatic defects to the hand first digital ray, aged from 21 up to 58 years (1 woman and 7 men). The defects were present at proximal phalanx in 4 patients, at proximal phalanx and first metacarpal bone in 2 patients, and only at metacarpal level in 3 patients. We used one inguinal flap with iliac crest bone portion, one radial flap migrated distally with a graft from the radial metaphysis, 4 lateral brachial osteocutaneous flaps and 2 posterior tibial osteocutaneous flaps. In 6 cases we performed LBF, harvested with small sizes. In 1 case we used osseocutaneous parascapular free flap for reconstruction of III-IV-V metacarpal defects.

Results. The iliac graft necrotized and was removed. The patient underwent other reconstructions, although the hand remained without the first digital ray. This negative result was caused by poor blood supply of the iliac graft with the presence of uncontrolled infection. In another 7 cases the fingers were preserved. It's to mention a good grip function, if even separately the ray's joints functions have been recovered unequally. However, microsurgical transfer doesn't stop arthrotic disease even if we got consolidation. Thus, we performed in 2 cases, over a period of many years, scaphoid excision with arthrodesis of 4 carpal bones. In addition, free microsurgical transfer is lasting. The average length of a surgery was 4 hours.

Conclusion. A vascularized bone graft offers good possibilities in preserving the deficient traumatized hand's function, but the donor region is selected depending on location and size of defect.

Keywords: microsurgery, hand, vascularized bone plasty.

POSSIBILITIES OF TISSUE RECONSTRUCTION WITH LOCO-REGIONAL FLAPS AT KNEE LEVELS

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Actuality. Being mobile, joint surfaces demand axial vascularized flaps, sometimes with more morphological components. At knee level are necessary not just elastic tissues, but also durable and resistant to pressure tissues, because many activities include also support on the knee.

Aim. Claiming possibilities of tissue defects plasty at knee level with loco-regional axial vascularized flaps.

Material and methods. During 22 years in our clinic were performed 28 soft tissue reconstructions of knee. Distribution by sex: 22 men and 6 women, with age limits of 17-65 years. Etiology of infected defects was mechanic in 24 cases and after thermal injuries in 4 cases. Type of used flaps: island ALT-8, perforator thigh-6, saphenous-6, perforator calf-4, peroneal-2, sural-1, island anterior tibial-1 case. Flaps component: fascio-cutaneous-22, musculo-cutaneous-3, osseo-cutaneous-2 and tendino-cutaneous-1 case.

Results. Island flap based on tibial anterior vessels have totally necrotized in postoperative period due to vascular complications. As “change” flap was used latissimus dorsi flap connected to vascular pedicle of lost flap. Other type of flaps survived completely realizing expected effect in each case.

Conclusion. Cartography of flaps of inferior limb gives possibilities to reconstruct defects at knee level using various vascular donor sites: descendent thigh vessels, perforator thigh and calf vessels, saphenous, sural, peroneal vessels. Their use is performed based on principle “simple to compound” according to necessity of traumatized area.

Keywords: loco-regional flap, knee tissue defects, pedicle flap.

COMPOSITE PERFORATOR FLAP OF THE CALF

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Introduction. Perforator flaps are flaps with axial vascular pedicle, that coming from deep tissues, perforates deep fascia, branching in subcutaneous tissue. The question if we could include in their structure tissues localized deeper than fascia, muscle, tendon and bone seems to be illogical. However, this topic is worth to be discussed, even more as from our experience we confirm that in calf it is possible.

Aim. Enlightening surgical techniques for inclusion in perforator flap's component of other tissues than the skin.

Material and methods. In order to form an treatment algorithm for inclusion in perforator flap's component bone, tendon and muscular portions, were anatomically studied 10 corpses, males, with age limits 18-59 years (38.4 ± 12.07 years). Length of calf varied between 39-45 cm (41.7 ± 2.3 cm). Anatomical research in other 2 corpses by semi-corrosion and corrosion highlighted the main principles of calf's angiosome. A study group of 47 patients, classified by components: cutaneo-periosteo-osseous (25 cases), cutaneo-fascio-tendinous (17 cases) and cutaneo-fascio-muscular (5 cases), confirmed the possibility to use perforator composite flaps in various clinical cases.

Results. It is known that calf's perforator vessels segmentary feeds neurocutaneous sural and saphenous angiosomes. At the same time, saphenous neurocutaneous pedicle have sufficient relations with tibial periosteum and muscle, while the sural one – with achilian paratenonum. Using relations of neurocutaneous pedicles with listed calf's structures and with perforator peroneal and tibial posterior vessels, is possible to harvest perforator composite flap.

Conclusions. Diversification of perforator flaps, based on structural criteria, broadens the spectrum of their use. Therewith, surgeons having structural composite flaps, have the possibility of carrying out complex surgical reconstruction.

Keywords: perforator flap, composite flap.

MANAGEMENT OF CARPAL INJURIES IN ORTHOPAEDIC SURGERY

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Objectives. Our main objective is to define a better protocol for Orthopaedics and Plastic Surgery Departments that will help the treatment of patients with carpal injuries, without the need of multidisciplinary approach.

Material methods. We designed a case series study based on 23 patients during 2015-2106 that were treated in our Orthopaedic department. The most frequent injury was the scaphoid fractures SF=12, followed by scapho-lunate dissociation SLD=7 and perilunate fracture dislocations PFD=4. All the patients were surgical treated by open reduction and internal fixation (ORIF) or closed reduction and internal fixation (CRIF) of the injuries. We used the wright instruments and implants such as hand surgery instruments, intraoperative C-arm machine, osteosynthesis mini-plates and screws.

Results. The best functional results were found in patients with scaphoid fracture using minimally invasive techniques. Patients suffering of scafo-lunate dissociation had also good results but the rehabilitation period was longer. Perilunate fracture dislocations are complex injuries and the surgical treatment was much more complex.

Conclusions. Carpal injuries are very common in young and active patients and are very disposed for underdiagnose or misdiagnose. The best approach for this cases is to establish a well-known team such as a hand surgery team, that will successfully treat all the patients.

THE DYNAMIC EXTERNAL FIXATION FOR PROXIMAL INTERPHALANGEAL FRACTURE-DISLOCATION OF THE HAND

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Introduction. Proximal interphalangeal fracture-dislocations and pilon fractures of middle phalanx represent a challenge for hand surgeons. Intra-articular fractures of the proximal interphalangeal (PIP) joint are commonly treated with the external fixation. Most commonly used is the dynamic external fixation techniques.

Purpose. To evaluate results after dynamic Suzuki modified fixation in treatment of proximal interphalangeal fracture-dislocation of hand.

Materials and methods. An above described Suzuki modification of the pins simple dynamic fixator was applied to 5 patients who sustained fracture dislocations of the PIP joint. The middle finger was involved in 1 patients, the ring finger in 2 patients, and the small finger in 2 patients. The average age of the patients was 23 years (range, 19–47 y). The average time from the injury to the surgery was 3 days (range, 1–7 d). The analysis of the results was based on the clinical, radiological, and subjective criteria judging range of motion of the proximal interphalangeal joint.

Results. The cases included 2 females and 3 males. Proper reduction and congruency of the joint was noted on final anteroposterior and lateral radiographs. The mean follow-up period was 4 months (range, 2-7month). Only one patient complained of mild pain with extreme flexion. All studies patients had an average of 85° of active PIP range motion to our follow-up and all patients returned to their prior level of activity and duties.

Conclusion. The dynamic Suzuki modified fixation of digits as described in this article is useful technique to treat unstable PIP fracture dislocations. Because it avoids the soft tissue trauma associated with open surgical techniques. Fixation using this handmade dynamic external fixator for the treatment of the proximal interphalangeal fractures is safe, inexpensive and easy to apply.

Keywords: external dynamic fixator, PIP joint.

INNOVATION IN UPPER LIMB FREE FUNCTIONAL MUSCLE TRANSFER – TWO CASE REPORTS

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Objective. The aim of the presentation is to highlight two special approaches in managing the brachial plexus injury (BPI) where other nervous reconstructive techniques proved unviable and the involve musculature was not optimal for restoration of the limb function.

Materials and methods. We present two cases of BPI admitted to our clinic for recovering the upper limb functionality using free functional muscular transfer (FFMT).

Results. For the first patient, the elbow flexion was rendered by latissimus dorsi muscle transfer and flexion of the fingers by termino-terminal anastomosing of gracilis muscle to an intramuscular branch of torachodorsal nerve. In the second case, the biceps muscle was reinnervated by connecting spinal accessory nerve with musculocutaneous nerve using a sural nerve graft. Furthermore, a branch from previous described graft was used for applying a gracilis FFMT

Conclusion. Our presentation brings two innovative approaches for managing heavy burden pathology, paralysis after brachial plexus injury. The validity of our proposed techniques stays in the favorable outcome of our patients.

Keywords: free functional muscle transfer.

DELAYED VENOUS REPAIR FOR DISTAL PHALANX REPLANTATION

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Objective. Vein anastomosis is the most important factor determining the success in the replantation of distal phalanx amputations. It is very difficult to find the collapsed veins and to perform vein anastomosis immediately after arterial repair. We have chosen to delay for at least one hour the veins repair to give time to the veins to expand to a more reasonable diameter for repair. The purpose of the study was to show that the delayed venous method provides a higher rate success rate in distal phalanx replantations and does not require use of specialized techniques.

Methods. The delayed venous method for vein anastomosis was used for the last 2 years. This surgical procedure includes initial arterial anastomosis, delayed expansion of the vein, and subsequent vein anastomosis after at least one hour of waiting.

Results. The delayed method was used in 7 cases. Expansion of veins up to 1 mm or more resulted in a high success rate (71%). In contrast, the success rate for distal phalanx replantation is extremely low in other techniques because of the difficulty of vein finding and anastomosis.

Conclusions. The delay venous method allows easier anastomosis of the subdermal veins of the distal phalanx. Therefore, it is a useful operative technique for treatment of amputated distal phalanx amputation.

Keywords: delayed venous repair, replantation.

VASCULARIZED BONE MARROW TRANSPLANTATION MODEL IN RATS AS AN ALTERNATIVE TO CONVENTIONAL CELLULAR BONE MARROW TRANSPLANTATION

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Objective. Current protocols for bone marrow transplantation (BMT) involve removing the bone marrow component directly from its donor microenvironment and then injecting such components into the circulatory system of the recipient. Vascularized bone marrow transplantation (VBMT), in comparison with conventional marrow transplants, has the advantage of providing a microenvironment and immediate engraftment of both mature and progenitor hemopoietic cells at the time of transplantation. The aim of the study was to follow the development of microchimerism after allogeneic VBMT vs conventional BMT.

Material and methods. In one group a VBMT model consisted of a donor Brown Norway (BN) rat hind limb heterotopic transplanted on recipient Lewis rats was used. In the second group a VBMT model consisted of a donor Brown Norway (BN) rat femur heterotopic transplanted on recipient Lewis rats was used. An intravenous infusion of donor bone marrow cells in suspension equivalent to that grafted in the vascularized femur limb was administrated i.v. on recipient rats in the third group. Cellular microchimerism was investigated in recipients of VBMT vs BMT.

Results. Donor-derived cells could be detected in VBMT recipients at 30 and 60 days but not in recipients of i.v. suspension BMC grafting.

Conclusions. VBMT provides a theoretical alternative to conventional cellular bone marrow transplantation by addressing crucial clinical problems such as failure of engraftment or graft versus host disease. It may be possible to develop a new approach for bone marrow transplantation based primarily on a microsurgical procedure (transplantation of vascularized bone marrow flaps).

LESSONS LEARNED IN 20 YEARS OF MICROSURGERY

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Becoming a good doctor and an experienced Reconstructive Microsurgeon can be a long and winding road with a lot of success but also disappointing moments. This presentation is focused on a one surgeon's personal experience in Microsurgery during the last 17 years. It will be presented some lessons learned in that period of time. Micro cases take a long time, are wrought with potential complications and failure, make things inconvenient for everyone involved from our nurses to the OR staff to our very own families. I can't speak for anyone other than myself, but it remains the most challenging part of my practice.

The aim of this presentation is to show you the same thing that I was fortunate enough to see in my training - that microsurgical cases demand the most of you as a surgeon, but can also be the most rewarding.

HEPATIC ARTERY ANASTOMOSIS IN LIVING DONOR LIVER TRANSPLANTATION FROM A MICROSURGEON'S POINT OF VIEW

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Objective. In living donor and split liver transplant surgery reconstruction of the hepatic artery is difficult because the graft hepatic artery is too fine to anastomose even using surgical loupes. The incidence of hepatic arterial thrombosis (HAT) was high before the introduction of microsurgical techniques. The results have improved dramatically and microsurgical techniques have become essential. In this presentation, we describe the microsurgical techniques for anastomosis of the hepatic artery and discuss them from the microsurgeon's point of view.

Materials and methods. Between 2012-2014, 17 patients with end-stage liver disease underwent LDLTx at the Fundeni Clinical Institute. In 1 case, the transplant surgeon anastomosed the hepatic artery using surgical loupes and checked by the microsurgeon, in 16 cases, the hepatic artery was anastomosed using an operating microscope, in 13 cases, a microsurgeon performed the anastomosis, in 3 cases, a transplant surgeon anastomosed the hepatic artery under the supervision of the microsurgeon).

Results. Our basic concept is to create the best possible conditions for anastomosis and to perform a simple end-to-end anastomosis. Tilting the operating table, placing a surgical towel in the right upper quadrant, retracting the right costal arch, and retracting the graft and the intestines, the parallel direction of the vessels in relation to the surgeon in the horizontal plane facilitated the anastomosis.

Conclusion. To perform a safety procedure, we believe a microsurgeon with vast experience in microvascular anastomosis should participate in the LTx operations with HA diameter under 2 mm.

LOWER LIMB VS. UPPER LIMB REPLANTATIONS

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Objective. Today, upper limb replantation is a common procedure in most plastic surgery units. The need for reconstruction of lower limb amputations is increasing, due to high-energy trauma in road accidents and work-related injuries. The indication for lower limb replantation is still controversial. Compared with upper limb replantations, indications are more select due to the frequent complications in lower limb salvage procedures, such as severe general complications or local complications such as necrosis, infections, nonunions, the need for secondary lengthening, or other reconstructive procedures. The satisfactory results given by artificial prosthesis, such as quicker recovery time and fewer secondary procedures, also contribute to the higher degree of selection for lower limb replantation candidates.

Material and methods. We present our experience with upper and lower limb replantations, compare those procedures and their final outcomes, trying to evaluate the correct indications and establish a therapeutic protocol.

Results. We had a large number of upper limb replantations, so we gain a lot of experience in this field. In comparison with the upper limb, we had a smaller number of lower limbs replanted, but we observed, in some of those cases good functional outcome, that encouraged us to extend our knowledge in this procedure.

Conclusions. Upper limb replantation is an established procedure, but lower limb replantation is rarer. Lower limb replantation may have successful outcomes if careful selection of patients takes place. Despite varying outcomes following successful replantation surgery, patients generally prefer to retain their own limbs rather than have a prosthesis and this should be considered as part of the informed decision making process by clinicians.

Keywords: lower limb, upper limb, replantation.

FUNCTIONAL RECONSTRUCTION OF THE TONGUE USING A MUSCULOCUTANEOUS ANTERO-LATERAL THIGH FLAP WITH SENSORIAL AND MOTOR INNERVATION

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Objective. The purpose of this study was to report the motor functional outcomes and sensory recovery of patients who had undergone total or subtotal glossectomy for oral carcinomas reconstructed with chimeric anterolateral thigh (ALT) flaps.

Methods. Five patients (all men), with a mean age of 49.5 years (range, 36-73 years) were included in the study. All patients were treated with chimeric ALT, including the vastus lateralis muscle with its motor nerve and skin paddle with its innervating nerve. All patients were administered functional tests involving sensory recovery, intelligibility, and swallowing.

Results. Mean follow-up was 26.6 months (12 months-5 years). The flaps were successful in all 5 patients. The donor site was closed primarily and no complications were seen in the follow-up period. Normal extension of the knee joint and no evidence of lateral patella instability occurred. Speech intelligibility was good in 3 patients and acceptable in 2. Deglutition scores were 6 in 2 patients, 5 in 2, and 4 in 1. All sensory tests were satisfactory in all parameters.

Conclusions. The results of this reconstructive option were satisfactory in terms of motor function and sensitive assessment of the neotongue. This technique is strongly recommended for patients with total or subtotal glossectomy.

EXPERIENCES AND PERSPECTIVES OF MEDICINAL HONEY DRESSINGS FOR BURNS AND OTHER WOUNDS

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Introduction. Honey has been used since ancient times as a remedy in wound care and has been the subject of numerous studies and research, that reveal its complex favorable action for wound healing: antibacterial, anti-inflammatory, anti-edematous, antioxidant; free radicals control; providing moist local environment; debridement of the wound; increasing the rate of healing and nourishing action. This work presents the composition, properties and therapeutic indications of L-Mesitran range of dressings, based on medicinal honey, authorized EU and FDA, and also a preliminary clinical trial that was conducted in the Department of Plastic Surgery, Emergency County Hospital of Ploiesti, Romania.

Methods. We have analyzed the conditioning, composition, properties and therapeutic indications of different products in the complex L-Mesitran range: Ointment, Soft, Tulle, Hydro and Net. Next, actions and clinical effects of these products based on medicinal sterilized honey have been highlighted in a lot of patients in the Department of Plastic Surgery, Emergency County Hospital of Ploiesti, Romania, by monitoring the clinical local evolution of burns and other wounds.

Results. L-Mesitran range of products is based on the combination of medicinal honey and other ingredients such as hypoallergenic medicinal lanolin, vitamins C and E. These sterilized preparations are available in the form of an ointment or impregnated dressings, to be selected and used in various clinical situations. They were applied for various skin lesions, after wound cleansing, and exerted quickly a favorable action on healing of burns and other types of wounds, sometimes in combination with surgical treatment, being applied in these cases before or after surgery.

Conclusion. The complex product range L-Mesitran can be administered in the topical treatment of various skin lesions as a result of the favorable effects exerted by medicinal honey, along with the other ingredients. Further clinical studies are necessary to establish the best indications, methods and forms of administration for each type of wounds, as well as the selection over other remedies.

Keywords: medicinal honey, burns, wound healing.

PROPOSAL FOR A ROMANIAN NATIONAL BURN REGISTRY, AS A VALUABLE TOOL TO IMPROVE BURNS MANAGEMENT – AIM, OBJECTIVES, IMPORTANCE, PREVENTION AND PERSPECTIVES

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The author brings to attention and proposes implementation of the Romanian National Burn Registry, based on a personal study, which analyzed epidemiologic data and bacteriologic results collected from the burned patients discharged from the Plastic Surgery Department of the County Emergency Hospital of Ploiesti, Romania, over a 4 years period (2010-2013). The investigated parameters were: age and gender distribution, residence, etiology, TBSA, location of lesions, therapeutic management, patients' mortality, length of hospital stay, types of bacteria isolated from the infected wounds and their sensitivity to antibiotics.

Furthermore, Burn registry is a statutory requirement, together with regular analysis of mortality and morbidity due to trauma and burns, to improve the quality and standards of health care, provided the Order No 1764/2006 issued by the Ministry of Health.

For comparison to other countries, National Security Agency and National Burn Repository in America, National Institute of Health and the Ministry of Health in England and the Department of Health and Senior in Australia are responsible for national burning registry. America's registry system is broader than other countries, due to the contribution of some burn centers from Canada, Sweden and Switzerland. The data of the French National Hospital Discharge Database (PMSI) allow to be described and analyzed the demographical profile and the management of hospitalized burn victims.

Data collection and analysis in Burn Registry System can represent the basis for burn quality improvement, health care planning, resource allocation, research, and prevention, and, thus, can serve the medical profession, the patients, and health policymakers.

Keywords: burn registry, analysis, research, prevention.

PROPHYLACTIC TRANSPOSITION OF EPL TENDON IN DISTAL RADIUS FRACTURE – CASE REPORT

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Introduction. Spontaneous rupture of EPL tendon is often described as a complication in distal radius fractures treated operatively and nonoperatively. No descriptions were found on prophylactic treatment in case of ongoing tendon rupture.

Aim. The aim of this case is to present a method of treatment of prophylactic transposition of EPL tendon after a fracture of the distal radius.

Material and methods. 42year old patient after motorcycle accident had a fracture of the distal radius with palmar displacement. He had a closed reduction and he was immobilized with a plaster for 6 weeks.

After this time he started rehabilitation, finally after 5 months after accident he had limited ROM of his wrist: palmar flexion 50, dorsal flexion 50, pronation 60, supination 80 and he had a moderate pain above third compartment of the extensors, especially during the movement of the thumb.

USG examination had showed that all the extensors looked normal, but in the cut of EPL there was an inflammatory fluid. The shape of the bone around Lister's tuberculum was irregular.

Patient had a steroid injection of diprophos and lignocaine to the interval of EPL, which cause the improvement for 4 weeks, but after this time all the symptoms came back.

Due to this chronic inflammation, pain and probable tendon rupture surgery was proposed. During operation of the wrist, EPL tendon was kinked and there was increased in EPL angulation at Lister's tubercle with slight change in tendon structure and color. The tendon was taken out of 3rd compartment and moved to the radial side and the compartment was closed. Dressing was applied, patient started exercises the next day.

Results. After 3 weeks of the surgery patient had a full ROM of this thumb and 60 degrees of dorsal and palmar flexion of his wrist with no more pain over the EPL, which continues in a long term observation.

Conclusion. In case of chronic pain above third compartment after distal radius fracture, EPL rupture can be suspected in the future. In these cases with no resolution after nonoperative treatment, prophylactic transposition may be necessary to avoid a rupture of EPL.