

**XXV National Congress of the "Società Polispecialistica Italiana dei Giovani Chirurghi"
13-15 June 2013, Bari, Italy**

ROLE OF ONCOPLASTIC SURGERY

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Objective: To date objectives of oncoplastic surgery aim as removal of the tumour with wide and safe margins and the best aesthetic result with less surgical times.

Methods: At our department we prefer the use of surgical techniques such as "Wise Pattern" technique after quadrantectomy and radiotherapy (with or without prosthesis), lumpectomy and Radiotherapy, nipple-areola complex, nipple and skin sparing mastectomies, and lipofilling as a supplementary method of other surgical procedures.

Results: Compared to previous surgical concept of removing "all you can", the aim of oncoplastic surgery is remove only "what is necessary". We have obtained excellent results from the point of view of oncological radicality and cosmetic results.

Conclusions: Oncoplastic surgery allows to obtain the tumour radicality with the best cosmetic result, further it guarantees to perform the disease follow-up using the necessary radiological investigations as confirmed in occasion of the Consensus Conference "Image Detected Breast Cancer" in 2005 and 2009. Final aim is a total breast reconstruction with the best patients' satisfaction and a complete restore of patients femininity.

**BREAST RECONSTRUCTION WITH BECKER EXPANDER IMPLANTS. A FOLLOW-UP STUDY
ON COMPLICATIONS THAT LEADING TO SECONDARY SURGICAL PROCEDURE**

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Objective: The main indications for Becker Expander Implants (BEI) are one-stage breast reconstruction and congenital breast deformities, giving the opportunity to vary the implant volume. This kind of implants requires port removal at the end of expansion. Recent studies showed an high rate of BEI removal after five years, ranging from 14% to 68%.

Methods: We present a study among 264 patients that underwent breast reconstructions with BEI from 2005 to 2012. All the patients underwent the same surgical procedure. We analyzed data regarding implant type and volume, mean operative time and postoperative complications.

Results: During a 5-year follow-up, 114 patients required secondary surgery to correct their complications or sequelae; 53 of them underwent BEI removal within 2 years of implantation, 64 within 3 years, 75 within 4 years and 85 within 5 years. Our findings show that two different sorts of complications can arise with these devices that may lead to premature implant removal. The first set of complications is common to any breast implant, and including capsular contracture, infection, poor aesthetic result, implant exposure, hematoma, implant rupture, implant dislocation and skin necrosis. The second set of complications is peculiar to BEI, and including filling port dislocation, filling port failure, pain on expansion, tube detachment, valve obstruction.

Conclusions: Because of their complex structure, Becker implants carry a higher risk of complications. Therefore, surgeons need to have a clear understanding of possible complications and must be aware that, once positioned, BEI cannot be adjusted at a later date, as in two-stage.

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EVALUATION OF CLINICAL-DIAGNOSTIC CORRELATION USING MRI IN THE STUDY OF POSTOPERATIVE COMPLICATIONS IN BREAST AUGMENTATION

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Objective: Breast augmentation is the most popular cosmetic surgery. Complications of the implant of silicone gel prosthesis can be divided into immediate and late. The purpose of the work was to validate the importance of breast magnetic resonance imaging (M-RM) as the method of choice in the follow-up to the study of late complications of patients with breast implants.

Methods: From January 2009 to January 2013 were included in a retrospective study 98 patients undergoing breast augmentation, with a minimum follow-up of 3 years. All patients were visited by 3 plastic surgeons who have evaluated: symmetry, projection of CAC, profile alteration and wrinkling, texture and smoothness of the breast. Based on the data collected, to patients was given a degree of capsular contracture (Baker classification). After the clinical examination a radiologist specialist in senology has run M-RM, with protocol specific sequences in the study of breast implants.

Results: Of 98 patients in 76 examination exam objective had no signs and symptoms of Contracture, 5 absence of signs but puntorio pain in one breast quadrants .4 inflammation and mastodynia, 1 an important asymmetry. After MR, 10 had developed a late unilateral seroma, 16 capsular contracture, 2 capsular rupture. Only two patients with capsular contracture were undergoing surgery, the remaining, asymptomatic, have been directed to quarterly follow-up.

Conclusions: The authors want to then confirm the value of MR in clinical-therapeutic supervision of late complications of breast augmentation, and the degree of correlation between Chan and diagnostic evidence examination.

IMPLANT BREAST RECONSTRUCTION FAILURE FOLLOWING SIMULTANEOUS NIPPLE AREOLA RECONSTRUCTION

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Objective: Nipple Areola Complex (NAC) Reconstruction is the breast reconstruction final step. Postoperative complications such as local infection and wound sufferance are rare. Therefore, these complications may result in breast reconstruction failure.

Methods: We report a case of a 52 years old woman, who underwent breast reconstruction with implant, and simultaneously nipple reconstruction with local flap and areolar tattoo.

The patient developed an immediate necrosis of the whole NAC tissues that damaged the entire reconstructive process.

Results: We analysed the causes that may be responsible for this rare complication such as poor postoperative flap drainage, allergic reaction to tattoo pigments, RT chronic effects on skin and smoking habit.

Conclusions: We feel simultaneous NAC reconstruction a safe procedure in standard conditions. In presence of comorbidity such as RT and smoking history we strongly suggest to perform NAC reconstruction in two separate steps in order to avoid major complications.

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FUNCTIONAL CORRECTION OF THE TUBEROUS BREAST: A REVIEW OF CLASSIFICATIONS AND TECHNICAL INNOVATIONS

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Objective: Tuberos breast is a deformity that becomes apparent during puberty with the growth of the breast. The origin is not clear. The incidence is not known, but was found in 88% of mammary asymmetries. There are several classification and numerous techniques of correction. The authors believe that the only fault to be corrected is the herniation of the breast. We describe our experience in the correction of different degrees of deformity of tuberos breast, through the use of a surgical technique in a single surgical time, without mammary gland manipulation. This technique was described in 2007 by M. D. Pacifico.

Methods: At the Plastic Surgery Unit of the University of Palermo the cases of 9 patients affected by tuberos breast deformity, treated between January 2010 and January 2013, have been reviewed. The patients were ranging in age from 17 to 30 years. The tuberos breast was classified at the preoperative evaluation, preoperative photographs by the authors using “Nortwood Index”. All patients presented mammary asymmetry, in one case was unilateral.

Results: The results were satisfying aesthetically. All patients were controlled after one week, three weeks, six month, two years. The natural shape and volume matching the contralateral breast, had correct asymmetry. The scar was barely visible. We found a slight smoothing of the nipple.

Conclusions: Pacifico’s technique is excellent for functional correction of breast deformity because minimizing the scars, preserves breastfeeding, (represents an advantage for young women), allows a good breast remodeling and is adaptable to all degrees of deformity.

TUBEROUS BREAST DEFORMITY: A MULTISTEP CORRECTION WITH EXPANDER AND PROGRESSIVE LIPOFILLING

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Objective: Tuberos breast is a pathologic condition of the breast affecting young women. The aberration of breast shape consists of a constricting ring at the breast base, breast tissue deficiency and herniation of breast tissue into the nipple-areola-complex with areola enlargement and additional asymmetry. Many techniques have been developed based on the correction of the breast shape trough glandular flaps and on the correction of hypoplasia using expander, permanent expandable implant or definitive implants. Nowadays, autologous fat grafting has been employed in breast reconstruction or to correct small breast asymmetry or profile irregularities especially in aesthetic surgery. We propose a new strategy for the treatment of tuberos breast trough a multistep approach combining tissue expansion and autologous fat grafting.

Methods: We report two cases of a grade 3 monolateral tuberos breast in which pre-expansion was achieved with Permanent Expander Implant. Four sessions of fat grafting were performed. With the aim of studying adipose tissue characteristics after grafting, we harvested a sample of the graft previously implanted.

Results: Patients were satisfied of the aesthetic result after the whole session of lipofilling. Histological view of the fat graft showed a different structure of adipose tissue previous and after all sessions.

Conclusions: Our study proposes a valid alternative technique to correct tuberos breast deformity.

Fat grafting is versatile, safe and has low complication rates, rendering it well accepted from patients.

The multistep autologous fat grafting, may help to achieve a good aesthetical result, a satisfying shape and volume of the corrected breasts.

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METASTATIC BASAL CELL CARCINOMA: ONCOLOGICAL RADICALITY OR CONSERVATIVE SURGERY? CASE REPORT

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Objective: Basal cell carcinoma is the most common of the cutaneous malignancies: It is usually a slow-growing, locally aggressive tumor than rarely metastasizes. However, we present a case of basal cell carcinoma of the forearm which metastasized to underarm lymph nodes.

Methods: A 37-year-old patient presented with an ulcerated cutaneous lesion in the left arm area with flexor contracture at the elbow. The patient also revealed lymphadenopathy in the homolateral underarm. She underwent a wide excision of the lesion, with reconstruction using a split-thickness graft. A 1st and 2nd level lymphadectomy was carried out in the region of the left underarm. Histological examination reported a diagnosis of undifferentiated basal cell carcinoma with bone, muscle and perineural invasion and revealed metastasis of BCC affecting 4 of 21 lymph nodes. Vismodegib therapy was considered, but a month later, the patient presented an incomplete spinal cord compression caused by metastatic BCC. Therefore, the patient underwent a resection of the spinal lesion followed by a cycle of RT and 6 cycles of CHT, with a resulting improvement in the associated neurological symptomatology.

Results: To date, there is no evidence of a recurrence.

Conclusions: According to our experience, in metastatic BBC, it is necessary to carry out an extensive surgical excision, involving the structures which have been infiltrated by the carcinoma as well. Given the small number of cases of metastatic BBC, it would be beneficial to establish a National Register to consent multicentric studies, capable of improving the management of these rare forms of tumours.

AXILLARY SUBCUTANEOUS AND MUSCULAR LOCATION OF BASISQUAMOUS CANCER: A CASE REPORT

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Objective: Basal-squamous carcinoma of the skin is considered an aggressive variant of squamous cell carcinoma with biphasic morphology: it has a strong and early metastatic ability both to regional lymph nodes, and remotely.

Methods: The authors present the case of a man of 70 years, which, since 2007, developed ulcerate lesions on the skin to the level of the right clavicular, enlarged over time. The patient had worked for about 30 years, at the Italsider, Italian steel industry in the blast furnace, in close contact with the products of coal combustion

Results: In the literature a Serbian group, Irena Jankovic and coll, reported a case in which, given the extreme aggressiveness of these tumors, have used, in 63 years old man, the research of sentinel lymph node to identify lymphatic metastasis, using, therefore, a protocol similar to that for melanoma. A German group, Gall C and coll, has carried out a radio and chemotherapy treatment to fight this type of cancer, arguing that this approach is equivalent to the surgical approach. The authors, given the poor results obtained with chemotherapy have opted for wide surgical excision of the lesion, using the Mohs technique for the evaluation of margins.

Conclusions: In this patient, the wide surgical excision associated with immediate reconstruction with musculocutaneous flaps, has been satisfactory over time; in fact no local or loco-regional or distant recurrence has been observed.

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WHAT KIND OF TREATMENT FOR MERKEL CELL CARCINOMA (MCC) RESOLUTION?

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Objective: Merkel-cell carcinoma (MCC), first described by Toker in 1972, is a rare primary neuroendocrine cancer and the most aggressive cutaneous malignant tumour. Nowadays pathogenesis remains largely unknown and management guidelines are not well defined. We report our experience in treatment of MCC, focusing on the appropriate surgical approach and the effectiveness of adjuvant radiation and chemotherapy.

Methods: From January 2000 to October 2011, we treated 7 patients (4F, 3M; mean age 69 years) with MCC. Six tumours localized in the head and neck and one in leg. Mean dimension was 4,8 x 2,3 cm. In all cases performed a wide incision from 1.5 to 2 cm. In 6 cases a delayed sentinel lymph node biopsy (SLNB) was performed: 5 were classified as stage I and treated with adjunctive radiotherapy; 1 patient classified as stage III was treated with adjunctive chemotherapy. One patient refused SLNB and we decided, anyway, to perform adjunctive radiotherapy.

Results: To date (minimum follow-up 12 months) all patients treated by surgery plus adjunctive radiotherapy are alive and free from local or distance disease. The only patient classified as stage III, died 8 months later because of metastatic neoplasm diffusion.

Conclusions: In our series, the early diagnosis and the multidisciplinary approach seem to lead to a better prognosis. Authors believe that adjuvant radiation therapy would allow to perform a less aggressive surgical approach and a better control of local recurrence; so loco-regional integrated approach seems a good option to function-conservative treatment of this rare kind of cancer.

USE OF AMINOGAM GEL IN HAND FRACTURES

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Objective: Bone lesions require immediate and adequate treatment to allow recovery of the hand function. To increase chances of efficient consolidation of fractures in the hand we analyzed the characteristics and properties of a sterile gel composed of four amino acids (Aminogam gel) applying it in outbreaks of fracture. Some studies have shown neo-angiogenesis and an acceleration of the healing process of soft tissues. Aminogam gel is shown capable of inducing in vitro the expression of angiogenic cytokine and vascular endothelial growth factor (VEGF) in fibroblasts; on these basis the authors have speculated that such a compound has the same mechanism of induction and modulation on osteoblasts in vivo.

Methods: The authors have treated 18 patients with acute trauma or consequences of non-union fractures. The first 9 patients (control group) were treated with normal fracture fixation systems and the remaining 9 (study group) were treated by adding to the fracture site, in addition to the normal fracture fixation, the Aminogam gel.

Results: The 9 patients treated with the addition of the Aminogam gel showed clinical and radiological signs of reduced healing time and fewer complications compared to the control group.

Conclusions: This compound is already being used successfully in some studies in reducing the healing time of surgical wounds, skin ulcers and bone regeneration of the jaw. Moreover we demonstrated, showing good results on the healing time also in hand fractures, reducing complications and allowing early rehabilitation.

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**THE TREATMENT OF THE EB HAND: EVOLUTION OF THE THERAPEUTIC PROTOCOL IN A
SPECIALIZED CENTRE**

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Objective: The Epidermolysis Bullosa (EB) is a rare congenital disease associated with blistering skin caused by minimal trauma. Because of its exposed position and its continued use in daily activities, the hand is constantly at risk of microtrauma and is one of the organs most affected by the disease. The authors present their experience in the microsurgical treatment of pseudosyndactylies associated to advanced medical devices.

Methods: January 2001-June 2010, 21 patients (51 hands) affected by EB (12M, 9F/age range 3-46 years). The surgical technique included the opening of the interdigital spaces preserving the neurovascular bundles; for the shelter of the substance loss, the technique has changed over time: skin grafts, dressing without or with k-wires, dermal substitutes. The average stay of these patients was 6 days (15 days in previous cases), glove and Kirshner removal at 28-32 days.

Results: All patients recovered without complications, with mean disease free time of 2.5 - 4.6 years. The follow-up showed a partial recovery of the wrist-hand, pseudosyndactylies resolution of long fingers, opening of the first web space. Use of skin grafts was abandoned in order not to create further damage in so sensitive patients. Dressings ensured optimal healing but in very long times. Dermal substitutes accelerate healing and reduce the number of general anesthesia.

Conclusions: The surgical technique has changed over time to ensure better results and faster healing.

**USE OF HOMODIGITAL REVERSE SKELETONIZED FLAP FOR DISTAL DIGITAL SOFT-TISSUE
LOSS RECONSTRUCTION**

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Objective: The Homodigital reverse skeletonized Island flap is a useful surgical alternative in the reconstruction of skin and soft tissue loss of the distal phalanx. This flap is based on a skeletonized vascular reverse flux pedicle. The purpose of this study was to evaluate the advantages and disadvantages of this flap compared with the standard reverse flap.

Methods: In the Plastic Surgery Department of Bari 196 patients with a soft-tissue loss of the distal part of the fingers were treated from 2008 to 2012. Thirty patient were reconstructed with an homodigital skeletonized reverse island-flap.

Results: Twenty-eight patients were followed up for at least 12 months after the operation (between 12 and 36 months). Two patients were lost at the follow-up. Twenty-seven flaps survived and only one total necrosis were registered. The patients judged the result “good” or “excellent”. Even if any neurorrhaphy were realized, in the 75% of the patients the WEBER score was from 3 to 4 mm; the DASH score-media was 4.1; the healing time range with a good functional outcome of the distal phalanges was of 21 days.

Conclusions: The homodigital skeletonized reverse Island flap is an ideal one-step surgical reconstructive procedure for soft-tissue loss of distal digital phalanges, even large soft tissue loss. This skeletonized variation is better than the standard one because of: easier surgical preparation; better closing of the donor site, possibility to create big flap, reducing the incidence of complications and giving good cosmetic and functional results.

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POTENTIALITIES AND LIMITS OF THE POSTERIOR ARM FLAP: AN ANATOMICAL STUDY

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Objective: The posterior arm flap is a fascio-cutaneous flap which vascularization is axial and which is harvested on the posterior aspect of the arm. Its vascularization is supplied by an anonymous artery whose origin is not uniquely determined, since there are few anatomical studies and clinical applications. For that purpose, we created a dissection work on fresh cadavers to study in detail the anatomy and to be able to promote the clinical application.

Methods: An anatomical study of 5 posterior brachial regions in 3 fresh cadavers injected with a radiopaque solution at the level of the axillary artery has been performed. Criteria of the study were: origin, length and diameter of the artery, arc of rotation of the flap and anatomic variants.

Results: We found the origin of the anonymous from the axillary artery, from the brachial artery and from the deep brachial artery. The average length of the vascular pedicle nerve has been estimated approximately 6.3 cm. The diameter of the artery at its origin was about 1.5 mm. The presence of the artery has been a constant. The arc of rotation of the flap allows the coverage of the regions of the shoulder, armpit and the proximal third of the arm.

Conclusions: The posterior arm flap has several advantages: the constant presence of the artery, the simplicity of the surgical technique, the quality of the skin, the sensitivity of the skin pallet, the minimum sacrifice of the donor region and widely acceptable cosmetic results. For this reason, we estimate the posterior brachial flap a valid alternative for the axillary region reconstruction, both as a pedicled flap for the limbs reconstruction and as a free flap.

NERVE ANASTOMOSIS

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Objective: The post-traumatic neuroanastomosis must be protected from the surrounding environment. This barrier must be biologically inert, not biodegradable, not compressing but protecting the nerve. Formation of painful neuroma is one of the major issues with neuroanastomosis; currently there is no consensus on post-repair neuroma prevention. The objective of this study is to demonstrate that the neuroanastomosis performed with venous sheath reduces painful neuromas formation, improves the electrical conductivity of the repaired nerve, reduce the discrepancies of the sectioned nerve stumps.

Methods: The Authors present their experience based on 26 patients divided into two groups. In the group A (16 patients) the micro-suture was wrapped in a vein sheath and compared with the group B (10 patients) in which a simple neurorrhaphy was performed. The venous segment used to cover the nerve micro-suture was taken from the superficial veins of the volar aspect of forearm. The parameters analyzed were: sensitivity, functional recovery and pain.

Results: Average follow-up was 10 months (range: 3 – 24 months). The group A showed a more rapid functional and sensitivity recovery and a reduction of the algodystrophic symptoms than the control group (B).

Conclusions: The Authors demonstrated that, in their experience, the venous sheath provides a valid solution to avoid the dispersion nerve fibers, to prevent the formation of adherent scars and painful neuromas, to compensate the different size of two nerve stumps, allowing, thereby, a more rapid functional and sensitivity recovery without resorting to expensive devices.

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ANATOMICAL REPAIR OF ZONE 1 FLEXOR TENDON INJURIES

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Objective: Repair and rehabilitation of the flexor digitorum profundus tendon in zone 1 may be demanding. The aim of the authors' study was to assess a new technique for reinsertion of the distal flexor digitorum profundus tendon.

Methods: The authors' series consisted of 18 patients who required primary ($n = 10$) or secondary ($n = 8$) repair of the flexor digitorum profundus tendon in zone 1. A half-Bruner incision was extended into the distal volar skin to expose the insertion site. Two drill holes were made through the base of the distal phalanx obliquely from the insertion of the profundus tendon in a dorsolateral direction. A modified Kessler suture was passed through the tendon and then through these holes and tied anteriorly, providing transosseous, internal fixation. Range of movement was assessed according to Moïemen's categories.

Results: Fourteen patients had excellent or good results, two patients had fair results, and one patient had a poor result. One patient failed to complete physiotherapy and was lost to follow-up. No tendon rupture was documented during a mean follow-up period of 8 months.

Conclusions: The authors' technique anchors the flexor digitorum profundus tendon or the graft in an anatomical position on the distal phalanx, without the need for external sutures or additional incisions. Furthermore, this is accomplished with minimal morbidity to the surrounding highly specialized tissue. The authors' results compare favorably with those of other techniques in the literature.

THE LOWER-EXTREMITY RECONSTRUCTION WITH MICROSURGICAL FLAPS: TIMING AND DECISION MAKING

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BACKGROUND: Treatment of lower-extremity trauma with soft tissue and bone injury remains a formidable problem. These injuries often occur in the multiply injured trauma patient, which makes management even more difficult. The management of lower-extremity trauma has evolved over the last two decades to the point that many extremities that would have required amputation are now routinely salvaged. The management of these injuries is a topic of debate in the literature. Treatment requires a team approach.

METHODS: The Authors present some different cases of patient of lower extremity trauma with soft tissue injury underling the importance of the management and of decision making for the outcome of patient using microsurgical flap. Extremity salvage is a long, complicated process. Patients must be made aware of the expected course and the anticipated functional outcome. Patient selection is an important variable in evaluating the final outcome.

RESULTS: The normal function is difficult to achieve, most patients are grateful for their salvaged limb. In comparing amputees with patients with salvaged limbs, psychological factors must be addressed.

CONCLUSIONS: The microsurgical flaps are a good choice for the lower extremity trauma for several reasons but they cannot be always our first choice in those treatments.

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SURGICAL PRINCIPLES AND PREOPERATIVE IMAGING IN "PERFORATOR AND PROPELLER FLAPS" OF THE LOWER LIMB

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Since microsurgery was born, preoperative imaging for knowing and evaluating the vascularization of a flap has been an area of great interest for the surgeon. About 20 years ago the so called "era of perforator flaps" was born, which led to the development of new concepts in reconstructive surgery, such as the "propeller flap", until the more recent "free style flap". The principle of this evolution is to use the flaps basing on the perforator vessels originating from the main vascular branches and going trough the muscles or inter-muscular septa to directly vascularise a well defined skin area. It is thus possible to harvest flaps basing on millimetric vessels, reducing to the minimum the damage to the donor site, however allowing an adequate vascularization of the same flap.

One of the main problem of this kind of surgery are the anatomic variations of the presence and/or the point of origin of these vessels. So, it is very important a correct preoperative mapping.

There are many techniques described in the Literature to identify the perforator arteries, such as manual Doppler, color-Doppler US, arteriography, angio-MRI or angio-CT.

The objective of our study is to present the more used techniques in this field and their indications.

"PROPELLER FLAPS": A NEW SURGICAL TECHNIQUE FOR RECONSTRUCTION OF THE LOWER 1/3 OF THE LEG

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Objective: The aim of this work is to evaluate the efficacy of a new type of flap called "Propeller Flap" for reconstruction of the lower 1/3 of the leg. This is a microsurgical flap without anastomosis, it reconstructs optimally defects by means of a 180° rotation of the flaps around a pivot represented by a perforator vessel.

Methods: Between 2002 and 2013, 60 patients (54 males, 6 females, age range 35-64) underwent reconstructive surgery using propeller flaps for post-traumatic defects. We used n° 41 perforator flaps based on the posterior tibial artery, 15 on the Peroneal vessels, 2 on the Tibialis Anterior vessels and 2 other perforator vessels. The area of the loss of substance was found to be within a range from 6 to 126 cm²; the average surgical time was 2 hours.

Results: All 60 patients were followed-up ranged between 3 months and 10 years. The 92% of patients achieved a complete healing with optimal coverage, 5% of the patients were cured with the help of a thin thickness graft, the remaining 3% of patients developed a flap necrosis, requiring a second surgical time and the use of a free flap.

Conclusions: The advantages of this technique are: microsurgery without anastomosis; better outcome compare to transposition flaps; transfer the primary defect in a graftable site if is not possible to close directly; possibility of free style surgery; it reduces operating time, costs and hospital stay; same or better results compared to free flaps; it reduces postop complications. In conclusion the propeller flap on skilled hands represent the future for reconstruction of the defects of the lower 1/3 of the leg

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ONCOLOGIC SCALP RECONSTRUCTION: A RETROSPECTIVE ANALYSIS OF 1400 CASES

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Objective: the aim of this study was to investigate demographic characteristics and histologic distributions of malignant scalp tumors in patients treated surgically in our Plastic Surgery Division and to propose guidelines for oncologic scalp reconstruction.

Methods: we perform a literature review and a retrospective data analysis of patients with surgically excised scalp malignancies at the division of Plastic and Reconstructive Surgery of University of Palermo between January of 2000 and October of 2012. Data regarding patients (age at diagnosis, sex, comorbidity) and tumor (hystologic type, size in cm², depth, localization and reconstructive procedure after excision) were analyzed. Records were reviewed to evaluate all surgical options in scalp reconstruction and produce the proposed reconstructive guidelines.

Results: a total of 1400 patients (M: F 3.5:1) (mean age 75 y) with histologically proven malignant tumor of the scalp were treated and followed for a period of 42 months (range 6 to 120 months). The reconstructions used were: primary closure (51%); local flaps (27%); skin grafts (16%); dermal regeneration template (4%); free flaps (2%). Reconstructive guidelines were defined on extent of the defect (cm² surface and depth) and by anatomical region of the scalp. For each specific defect we proposed more reconstructive solutions.

Conclusions: Our retrospective study on patients treated from 2000 to 2012 marked a high occurrence of malignant scalp tumors in our territory and a demographic mismatch with literature data. It was possible to lay down a guideline for pre-operating planning based on the results and literature review evaluations. This guideline has been developed to provide surgeons with a range of possible reconstruction solutions in order to allow them to select an optimal reconstructive strategy. We expect that surgeons will have the possibility to personalize a surgical treatment for that particular patient in that particular medical and socioeconomic environment.

HEAD AND NECK RECONSTRUCTION AFTER TUMOR RESECTION: A DECISIONAL ALGORITHM

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Objective: In 2007 at the service of Plastic Surgery of Trieste a clinical group that deals with patients with tumors of the head and neck was established. The aim is to provide a functional reconstruction in a single surgical time, restoring the deglutition, the phonation, the continence and allowing osseointegration.

Methods: In these 6 years we have treated 62 patients doing 73 flaps (69 pedicled microsurgical and 4). All patients were evaluated preoperatively by our team in collaboration with ENT, according to the demolitive planning we opted for the use of the flap or flaps suited to the type of defect following our algorithm.

Results: As shown in our study, the flaps more used are the ALT and the radial forearm, the latter recently replaced, the size of the defect permitting, by the ulnar flap. We prefer these flap because thickness and texture of the skin, absence of hair, as well as the length of the pedicle offer excellent guarantees of success in most cases. The free fibular flap was always used in cases where the demolition provided a residual deficit of the jaw, when it is possible we prefer to use the flap as osteo-cutaneous, doing a single anastomosis, reducing the risk of complications.

Conclusions: We believe that the creation of a multidisciplinary team and a decision algorithm allow to achieve excellent results in a single step surgery.

* Presenting Author

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VERSATILITY OF THE DERMAL REGENERATION TEMPLATE (INTEGRA®) ENGINEERED TISSUE IN THE RECONSTRUCTION OF HEAD DEFECT AFTER ONCOLOGICAL DEMOLITION

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Objective: Radical ablative surgery is gold standard treatment of head skin cancer; resulting need of reconstruction is a challenge for Plastic Surgeons. The Authors expose their 6-year experience using Integra-dermal regeneration template.

Methods: From January 2006 to January 2012 fifty-six patients, mean age 72 years, with wide malignant head skin tumour (39 scalp, 9 forehead, 5 cheek, 3 zygomatic area, 1 nose) have been treated with two surgical procedures. First for tumour removal and Integra® positioning; second, 3 weeks later, for removing superficial silicon layer of Integra® and covering with a split thickness skin graft. Mean surface area reconstructed was 73.7 cm². Massive malignant tumours treated were: 38 basal cell carcinoma, 16 squamous cell carcinoma, 2 malignant melanoma. One to 6 yrs follow up observed.

Results: No significant complications. Only 2 seroma, 1 hematoma and 3 partial skin graft necrosis (with spontaneous healing). No tumour recurrence. Satisfactory cosmetic and functional results in all cases.

Conclusions: In facial and scalp defect reconstructions after wide tumour excision, Integra® allows to obtain a thicker and more durable coverage than skin graft, allowing to detect a tumour recurrence earlier than a flap reconstruction, with lower complication rate and enhancement of patient compliance. Furthermore these operations are performed under local anaesthesia and are therefore suitable for elderly "critical" patients. The authors have shown that the use Integra® is a simple, flexible, effective, safe technique, and, therefore, a rational and valid approach to reconstruction full-thickness defects of face and scalp with preserving the aesthetic-functional units.

CUSTOM-MADE RECONSTRUCTION OF THE HEAD

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Objective: Head bone reconstruction after oncological demolition has always been a challenge for Plastic Surgeons. Especially the choice of the reconstructive material to be used is wide. An ideal alloplastic material should be: easily adaptable, biocompatible, enable the growth of new tissue and maintain its shape. The polyetheretherketone (PEEK) was recently introduced in custom-made head reconstructions.

Methods: The Authors present a custom-made reconstruction with PEEK implant of head bony structures; it was performed on a young patient affected by bone deficit following a radical emimaxillectomy for a low grade fibrosarcoma. The patient had a marked asymmetry of the middle third of face with left cheek, zygomatic arch and ipsilateral orbital depression area, with complete absence of the salience of the lower orbital portion and esophthalmos.

The custom-made PEEK for the reconstruction of the orbital-malare-zygomatic complex was based on 3D CT scans.

Results: Post-operative follow-up was 12 months; no major complications occurred, such as infection or fracture or extrusion of the implant. The aesthetic result was very satisfactory.

Conclusions: The use of PEEK implant for custom-made head reconstruction results to be excellent. PEEK's characteristics are: biomaterial light but resistant, handy to use, fully compatible with the execution of CT and MRI and therefore represents an excellent alternative to titanium implants.

Compared to autologous material avoid problems of morbidity of the donor site, systemic complications are reduced as well as the surgical time and hospital stay. The surgical technique has proved to be easier, faster and with excellent long-term results.

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THE HETEROLOGOUS AND AUTOLOGOUS MATERIALS IN THE ORBITAL RECONSTRUCTION

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Objective: The orbit, due his particular position, is more and more involved in the massive trauma of the head. In case of massive fracture of the orbit's bones and in case of loss of tissue, we can use two groups of materials: heterologous or autologous ones. The ideal material should be inert, easily flexible, stable over time and sufficiently rigid.

Methods: We retrospectively reviewed our experience of 264 patients with both heterologous and autologous materials. In our experience, the heterologous material more frequently used in orbital reconstruction are strips of Lyodura, metal meshes and Polydioxanone (PDS) plates. Alternatively we use the autologous bone predominantly in the orbital trauma associated with severe soft or bone tissue injuries, in late reconstructions or secondary surgery.

Results: We managed the recovery of three-dimensional anatomical, functional and aesthetic orbital structure and its contents with all materials. We were able to stabilize the fragments and graft bones by rigid fixation and reconstruct and replace the skeletal structures involved (canthus ligaments, muscles and nerves and the lacrimal apparatus).

Conclusions: Currently, there is no ideal bone substitute. The choice of the material to be used for the reconstruction of the orbit and in particular of the floor depends on the type and location of the defect, on the age of the patient, on the time of reconstruction (immediate, delayed and late), as well as the personal experience of the surgeon.

PREAURICULAR FLAP: ANATOMICAL STUDY AND CLINICAL APPLICATION

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Objective: Reconstruction of the auricular concha can represent a challenge for surgeons. We performed an anatomical study on fresh cadavers to analyze the vascularization of the auricular flap and its possible application for concha reconstruction. This study was completed by a clinical application.

Methods: We performed unilateral dissections of the pre-auricular region on 7 fresh cadavers. After the recovery of Superficial Temporal Artery (STA) we try to identify its perforator branches. The flap is designed with a form of racquet vertically oriented. Its basis is centered at 5mm from the tragus with a width of approximately 1 cm. The top of the flap can be wide until 3,5 cm. Dissection begins with skin incision at the basis of the flap and identification of STA. After, an incision is performed on the posterior side of the flap and the cutaneous perforator vessel is identified. Then the flap can be raised and turned on the defect. We use this flap in a patient presenting a carcinoma ulcerated.

Results: We have always found a cutaneous perforator of STA. This artery is located at about 1 cm anterior and 5 mm above the midpoint of tragus. Its length is of 1-1, 4 cm.

Conclusions: The constant presence of the perforator artery of the STA in the pre-auricular area, in all performed dissections, let us to consider it as a pedicle of the pre-auricular flap. This flap can be a good choice for reconstruction of concha defects, as it allows sparing the STA.

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ADVANCEMENT CHEEK FLAP FOR A SINGLE STAGE RECONSTRUCTION OF POST-ONCOLOGICAL NASAL SIDEWALL LARGE DEFECTS

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Objective: Reconstruction of soft tissue nasal sidewall loss has an important influence on the appearance of the nose. Numerous techniques are described in the literature but a primary reconstruction with a final good result is not often possible. The authors present an advancement cheek flap for a single-stage reconstruction of post-oncological nasal sidewall large defects.

Methods: Between January 2009 and July 2012, sixteen patients with age ranged between 54 and 74 years underwent excision of skin tumors of the nasal sidewall and immediate reconstruction with an advancement cheek flap nourished by perforators from the facial branch of the superficial temporal artery. The defects size ranged from 2.6 x 2.6cm to 3.5 x 5cm.

Results: Oncological radicality was obtained in all cases. The aesthetic results were excellent in all of the patients. No secondary revision was needed.

Conclusions: The authors' advancement cheek flap can be considered the first choice for reconstruction of split-thickness defect of the nasal sidewall larger than 2.5cm because it reestablishes in one stage the nasal contour detail thus preserving the normal facial topography.

BILOBED OR GLABELLAR FLAP FOR NASAL TIP RECONSTRUCTION?

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Objective: Reconstruction of a nasal cutaneous defect represents an enormous challenge to surgeons. Among various reconstruction methods that are available, local flaps provide versatile options and optimal functional and aesthetic results. The aim of this study was to compare the aesthetic outcomes after use of different operative techniques to repair defects of nasal tip after tumor resection.

Methods: From January 2006 to January 2012, 42 patients have been treated (22 F and 20M; mean age 69 years) with basal or squamous cell carcinoma of nasal tip. Authors compared bilobed flap and glabellar flap evaluating: respect of aesthetic units of nose, tip projection, alar retraction and scars, using a rating score from 0 (poor) to 5 (excellent).

Results: Mean follow up 4 years. No patients experienced breathing difficulties after reconstruction. Only partial flap necrosis in 2 patients. No recurrences. Most patients were satisfied. In minimal defects involving the central or lateral tip with size < 1.5 cm in diameter, the functional and aesthetic outcome was better for bilobed flap; but in wide defects the results were better using the glabellar flap, because the aesthetic nasal subunits are respected and there wasn't alar retraction.

Conclusions: Local flap is the most versatile method for nasal reconstruction. Careful assessment of the defect and preoperative planning are fundamental for final result. Site and size of defect are key considerations in choosing the local flap. For nasal tip Authors demonstrated that bilobed and glabellar flap are reliable and simple options, allowing appreciable functional and cosmetic results.

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THE USE OF HYALURONIC ACID AND IODINE COMPLEX (HYIODINE®) FOR BURN TREATMENT

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Objective: The process of wound healing in a patient suffering from burns is a dynamically complex event, the characteristics of which have been the object of research for a long time. The aim of our study is to assess the capacity of a medication composed of Hyaluronic acid and iodine complex to stimulate the natural healing processes of the skin in intermediate and deep burns, to avoid having to resort to skin grafts.

Methods: Seven patients defined as "critical," due to age and high surgical risk, underwent an "early" surgical procedure of Hydrosurgical debridement and then, the application of silver hydrofiber dressings to be kept on for approximately 7 days. On the removal of these dressings, any areas which had still not healed were treated with local applications of Hyiodine® on alternate days.

Results: The treatment protocol using Hyiodine® have shown a complete recovery from intermediate and deep burns 7-15 days following the debridement, without any septic complications and avoiding the reconstruction time needed for skin grafting.

Conclusions: The use of Hyiodine® compound contributes to creating an ideal microclimate and stimulates, by way of hydrophilicity, an effective process of autolytic detersion of the wound bed. In addition, it provides an extended spectrum antimicrobial action, promotes angiogenesis, the migration and proliferation of fibroblasts and cherratinocytes, promoting the reepithelialization of deep dermal lesions.

The use of Hyiodine® promotes the spontaneous healing of dermal lesions destined for skin grafting, in so doing it improves the compliance and survival of patients, above all, the elderly and the debilitated.

USE OF CUTE CRYOPRESERVED ALLOGENIC IN PATIENT BURNED: INDICATIONS AND LIMITS

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Objective: the cryopreserved allogenic cadaver skin graft is a good choice in the surgical treatment of burns deep to alternatively dermal substitutes (INTEGRA or HYALOMATRIX), because prevents leakage of protein and fluid and electrolyte and the dangerous septic complications.

Methods: we used a cryopreserved allogenic cadaver skin graft in treatment of burned areas in a patient with deep burn extended of 30% (breast, chest, right arm, face and back). We treated the patient by escarectomie early, so as to move the catabolites and necrotic tissue, that if released into the circulation can cause mof. the injured areas were covered temporarily by cryopreserved allogenic cadaver skin graft and autologous skin graft expanded.

Results: Following this treatment, the patient's general condition seemed improved and especially there were no clinical signs and laboratory findings of sepsis and mods. The dermis cryopreserved persisted at the level of the dorsal region. These areas were medicated with solution-based Iodiopovidone and hyaluronic acid until the healing by second intention.

Conclusions: The best solution in these cases is represented by use as a system of temporary coverage of the burn areas of cryopreserved allogenic skin, because it is able to take root and reduce septic complications and reduce the loss of protein and fluid and electrolyte.

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PULSED DYE LASER (PDL) IN HYPERTROPHIC SCARS AND KELOIDS: OUR EXPERIENCE IN THE PAST 4 YEARS

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Objective: Pathological scars affect about 3% of world population. Common integrated protocol includes application of silicone sheets, local corticosteroids infiltration, massage with scar ointment, total sun protection. Recently the Pulse dye laser was used with satisfactory results in the treatment of hypertrophic and keloids scars.

Methods: January 2008 – June 2012 48 patients (20 hypertrophic scars, 38 keloids), 32F-16M, mean age 42, were treated. 15 head & neck, 27 trunk, 7 arms, 3 legs of whom 30 results of surgery, 8 of trauma, 8 of cosmetic procedures and 2 burn. Each received PDL treatment related to clinical conditions, 3/8 treatments at 4-week intervals. All patients were assessed with the “VANCOUVER SCAR SCALE”.

Results: After 4 treatments: 30% showed an improvement. After 8 treatments: 70% patients showed clinical improvement (50% high results, 20% moderate to low results). Overall compliance was good. In only 2 patients we had complications such as skin depigmentation and new scar making. In 3 cases we had improvement of the keloids.

Conclusions: Our results show the effectiveness of PDL in selected patients programming its parameters depending on local clinical aspect. Our follow up showed symptoms reduction in grade for hypertrophic scars, stable results (no relapses) in keloids.

USE OF A SINGLE LAYER DERMAL REGENERATION TEMPLATE FOR ADHERENT SCARS TREATMENT

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Objective: An adherent scar is the result of an abnormal collagen production during the healing of soft tissues after a trauma. The treatments currently used are the autologous fat transplantation and the injection of biopolymers. These techniques can result in side effects such as resorption, intolerance or granulomas. We propose the use of Integra® single layer as an alternative treatment of these scars.

Methods: Seven patients have been treated in a period between January 2010 and January 2011. The surgical technique consisted of a small incision in correspondence of the scar which allowed us to undermine the entire scar area on a subcutaneous plane and to create a pocket in which Integra® has been placed. Patient's follow-up was two years. Results were analyzed through a POSAS questionnaire and 3D photos.

Results: POSAS results showed an improvement in skin pliability and in overall opinion of the scar. A satisfactory filling of the scars was proved thanks to 3D photos. We had not hematoma, infection or seroma. We had not intolerance or granuloma.

Conclusions: Integra® single layer can represent an alternative technique in treatment of adherent scars. The purpose of its use is not to replace patient's tissues, but to help the regeneration of autologous tissues without phenomena of intolerance. It is not necessary to make an overcorrection as the volume obtained remains stable in the time.

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**THE EFFICACY OF ADIPOSE-DERIVED ADULT STEM CELLS (ADSC) IN IMPROVING
QUALITY OF SCARS**

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Objective: Autologous adipose tissue grafting (lipofilling) is currently used for clinical applications such as volume correction due to malformations, pathological scars and after oncologic and/or aesthetical procedures. Many protocols have been tried for treatment of pathological scars but there are not yet precise guidelines. Purpose of this study was to investigate if autologous fat grafting is a good strategy for the management of these scars.

Methods: Thirty five patients, from January 2006 to January 2012 underwent lipofilling according to Coleman's technique (16F,19M, range 13–58, mean age 36 yrs) for pathological scars of face (6 cases), breast (9), thorax (5), abdomen (6), upper and inferior limbs (9). Always short-term profilaxis. Mean hospital stay: 3.8 (3–5 days). Follow up performed at 3, 6 and 12 months.

Results: Using the Vancouver scale we observed a significant improvement of four variables: vascularity, thickness, pliability and pigmentation. Patients also reported a remarkable reduction of unpleasant sensations. No complications excepted the necessity to repeat the lipofilling (a mean of 40–50% of injected adipose tissue was resorbed after 6–12 months).

Conclusions: 'Lipostructuring' appears to be a reliable, safe, easy, repeatable technique able to improve tissue healing, cells regeneration, bothersome symptoms. Identification of ADSC in the grafted adipose tissue, clarify why skin trophism and healing processes improve dramatically after lipostructuring.

LIPOFILLING: A NEW WEAPON IN THE TREATMENT OF LOWER LIMB ULCERS

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Objective: Lipofilling is a surgical procedure used both for cosmetic and reconstructive purposes. The technique relies on recognition in fat tissue, of Multipotent stem cells, which can be used to improve the texture, softness and elasticity of pathological tissues (scars, ulcers, skin irregularities). The authors present their experience in treating vascular ulcers of the lower limbs with lipofilling.

Methods: Between June 2011 and February 2013 were treated 8 patients: 4 venous ulcers, 3 vascular ulcers, 1 ulcer complicated by osteomyelitis. All patients were subjected to at least 2 cycles of lipofilling, 4 months from each other, using adipose tissue taken from the abdominal region. After 15 days a single expert surgeon assessed: cutaneous trophism and elasticity of the skin, presence of granulation tissue, pain reduction (VAS scale), wound reduction.

Results: all patients had pain reduction (from 9 to 5). The lesions all improved in: surrounding skin trophism, appearance of granulation tissue in the wound margins, reduction of the size. 3 patients were brought to complete healing with advance dressing in 4 weeks after the second treatment, 5 patients are still being treated.

Conclusions: The fat transfer is an easy run technique, limited invasiveness, executable under Day-Hospital, repeatable and with high compliance, revealing a additional weapon in treating vascular ulcers.

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COMPARED TO COVERAGE BY STSG GRAFTS ONLY RECONSTRUCTION BY THE DERMAL SUBSTITUTE INTEGRA® PLUS STSG INCREASES TCPO2 VALUES IN DIABETIC FEET AT 3 AND 6 MONTHS AFTER RECONSTRUCTION

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Objective: the purpose of this retrospective comparative study is to evaluate the results of reconstruction of diabetic feet by STSG and by dermal substitute Integra® covered by STSG in terms of vascularity of the reconstructed wound-bed by measurements of tissue oxygenation (TCPO₂).

Methods: 23 patients were included into the study (12 were reconstructed by STSG only and 11 with Integra® and STSG). In each patient TCPO₂ measurements were performed at the same spot of the reconstructed area at 14 days, one month, 3 months, 6 months, 12 months and 24 months after reconstruction.

Results:

Time after reconstruction	Measured TCPO ₂ (av. value)	
	STSG	Integra + STSG
14 days	36	36
1 months	39	42
3 months	42	50
6 months	42	50
12 months	41	54
24 months	42	56

Wound beds reconstructed by Integra showed on average 10 mmHg higher TCPO₂.

Conclusions: our study estimated in an objective way, by TCPO₂ value measurements, the oxygenation of the wound bed in diabetic feet after reconstruction by STSG only and after adding Integra® to the wound bed before final STSG coverage.

During first month after reconstruction no statistically significant differences were found. After 3 months TCPO₂ studies revealed statistically significant higher oxygen tissue pressure in diabetic feet covered by Integra plus STSG. These findings endorse in an objective way the clinical findings already reported while using the dermal substitute. It remains to explain the role of this increase of oxygen tissue pressure in redefine the indications for the use of dermal substitutes.

SURGICAL TREATMENT OF EXTRAVASATION INJURIES

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Objective: Extravasation of chemotherapeutic agents is a severe complication of systematic therapy, that can potentially cause severe damages, resulting in dramatic decreases in quality life. Treatment methods are different on the basis of various type of agents, physician judgment and institutional protocol, but the knowledge of appropriate measures (dilution, extraction, antidotes, and supportive treatments) can decrease need for surgical intervention and the prompt recognition can prevent more serious adverse outcomes.

Methods: The authors present their experience of treating anticancer drug extravasation describing effects of the various agents and the treatment, that consists of immediate (within 48 h) infiltration with physiological solution and drugs and subsequent manual aspiration of solutes alternated with profuse irrigation of the infiltrated area; the authors describes also treatment of the sequele.

Results: Since the year 2000 we treated 25 acute patients and 43 patients admitted to our attention to treat the sequele. In our casistic have had neither complications or pathological scars.

Conclusions: Our purpose is to transpose the recommendations of clinical governance of the Ministry of Health of management of cancer patient, about chemotherapeutic agents e adverse reaction.

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MR-LYMPHOGRAPHY FOR PREOPERATIVE ASSESSMENT OF PATIENTS SUFFERING FROM LYMPHEDEMA

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Objective: According to World Health Organization, lymphedema is one of the most disabling diseases of humans. Today, our knowledge of the anatomy and pathophysiology of the lymphatic system is still limited. This is mainly due to the difficulty in visualizing lymphatic vessels “in vivo”. We routinely use magnetic resonance-lymphography (MR-L) in order to study lymphatic system and preoperatively locate lymphatic vessels in patients with lymphedema. The aim of this work is to demonstrate the efficacy of this imaging technique in the preoperative planning of lymphatic-venous anastomosis (LVA) for lymphedema treatment.

Methods: We retrospectively studied 81 patients affected by lymphedema undergone MR-L preoperative evaluation and microsurgical treatment during a period of three years (October 2009-December 2012). The images obtained were analyzed by a radiologist and two surgeons, to assess the characteristics of the lymphatic system and to select and localize lymphatic vessels suitable for LVA according to specific coordinates. These data were transferred to the patient skin surface before performing supermicrosurgical LVA.

Results: MR-L allowed to locate between 1 and 7 lymphatic vessels for each limb examined. In 79% of cases we intraoperatively identified lymphatics exactly as indicated by MR-L and, once localized, we were able to perform satisfactorily LVA in 82% of cases. No major complications related to MR-L occurred.

Conclusions: MR-L is a safe and noninvasive imaging technique, useful for the study of the lymphatic system and preoperative planning of LVA in patients suffering from lymphedema.

THE MICROSURGICAL “COMBINED TECHNIQUE” FOR THE TREATMENT OF SECONDARY CHRONIC LIMB LYMPHEDEMA

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Objective: Secondary chronic limb lymphedema (SCLL) is a disabling side effect of groin and axillary lymph node (LN) surgery. Patients who do not respond to conservative therapy can benefit from microsurgical treatment. The aim of this work is to describe our surgical technique (Combined Technique-BCCT) for SCLL treatment, its indications and results.

Methods: From June 2007 to December 2011, 43 patients with irreversible SCLL underwent BCCT. The procedure combines supermicrosurgical lymphaticovenular anastomosis (LVA) with microsurgical lymph node transfer (LNT). End-to-end/side anastomosis between subdermic/subcutaneous lymphatic collectors and small veins (LVA) were performed in order to shunt the lymph within blood circulation, so reducing its build-up in soft tissue. We also transferred superficial inguinal LN to the axilla, wrist or contralateral inguinal area (LNT) using the superficial circumflex iliac artery perforator (LN-SCIP) flap. For postmastectomy patients with arm lymphedema, microvascular breast reconstruction using the deep inferior epigastric perforator (DIEP) flap was performed in combination with LNT (LN-DIEP flap).

Results: All flaps survived and 1:7 LVA were performed in each patient. No major complications were seen after surgery. The rate of preoperative versus post-operative excess circumference decreased in range 12-86,7% (average 39,72%). The clinical improvement was more dramatic at a 6 months follow up, while a 18 months follow up showed stable results.

Conclusions: Despite various surgical techniques for SCLL treatment have been described, there is no consensus about the ideal one between the experts. Our experience shows that BCCT can be considered as a safe and effective procedure to treat SCLL.

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