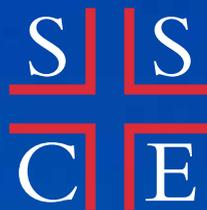


SWISS
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ABSTRACTS

56th CONGRESS OF SWISS PLASTIC SURGERY (SGPRAC-SSCPRE)

8th CONGRESS OF SWISS AESTHETIC SURGERY (SGAC-SSCE)

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PALAIS DE BEAULIEU – LAUSANNE



- hand and upper limb:
aesthetic and reconstructive treatment
- plastic surgery in seniors
- abdominoplasty and body contouring

FC**Evaluation of immunosuppressive drug delivery systems for long-term maintenance of vascularized composite allotransplantation in a porcine model**

Arenas Hoyos Isabel^{1,2}, Yerly Anaïs¹, Mikulic Josip¹, Hirsiger Stefanie², Lese Ioana², Casoni Daniela¹, Hammer Sabine³, Banz Yara⁴, Constantinescu Mihai², Vögelin Esther², Rahmfeld Lisa⁵, Aleandri Simone⁵, Prost Jean-Christophe⁶, Taddeo Adriano¹, Luciani Paola⁵, Rieben Robert¹, Olariu Radu²

¹ Department for BioMedical Research, University of Bern, Switzerland;

² Department of Plastic and Hand Surgery, Inselspital, University Hospital, Bern, Switzerland;

³ Department of Pathobiology, University of Veterinary Medicine Vienna, Austria;

⁴ Institut of Pathology, Inselspital, University Hospital Bern, Switzerland;

⁵ Department of Chemistry and Biochemistry, University of Bern, Switzerland;

⁶ Center of Laboratory Medicine, University Institute of Clinical Chemistry, University Hospital, Bern, Switzerland.

Vascularized composite allotransplantation (VCA), such as hand transplant, promises unsurpassed "like-with-like" reconstructive possibilities. However, due to the well-known side effects associated with the necessary immunosuppressive therapy, the clinical use VCA is limited. Site-specific drug delivery systems (DDS) loaded with an immunosuppressive molecule have shown promising results in a rodent model. Our aim is to validate the efficiency of DDS-based immunosuppressive therapy in a clinically significant model of VCA.

Complete SLA mismatched wild-type pigs underwent an osteomyocutaneous flap allotransplantation as a representative model of VCA. Animals were randomly assigned to one of the following groups : I) Control, no immunosuppression, II) Systemic tacrolimus, and III) Triglycerol-monostearate Tacrolimus (TGMS-TAC). Animals were monitored until irreversible (grade III-IV) rejection or post-operative day (POD) 90. Blood and skin samples were obtained at defined time points to analyze markers of organ damage, drug concentration levels and immunological response.

Pigs from group I (n=4) reached macroscopic grade III-IV rejection, as expected, between POD 7-9. The mean survival time (MST) in group II (n=3) was 43 days, similarly to what was observed in group III (n=4), with an MST of 46 days. Blood levels of tacrolimus in group III peaked at 40 ng/ml around POD7 with fast blood clearance thereafter, correlating with an inflammation-dependent release of the hydrogel-encapsulated drug.

A single injection of an enzyme-responsive tacrolimus hydrogel significantly prolongs graft survival compared to controls in a fully-mismatched wild-type porcine VCA model.

P4

Keystone flap type IIIB: a new variation for coverage of joint regions

Bauer B¹, Spiegl MFK¹, Müller D², Christen S¹, Grünert J^{1,2}

¹ Klinik für Hand-, Plastische- und Wiederherstellungschirurgie, Kantonsspital St. Gallen;

² Klinik für Orthopädie, Balgrist Universitätsklinik

Casereport

Introduction

The "Keystone Design Perforator Island Flap (KDPIF)" is a local fasciocutaneous advancement perforator flap. 4 subtypes have been described and the versatility and reliability is well documented. We now present a new Keystone flap design we find to be particularly suitable for joint regions and therefore propose an extension of the classification by Behan.

Materials and methods

We designed a new variation of KDPIF at the knee joint based on a type III Keystone flap whereby the two opposing flaps are shifted against each other in an oblique alignment in order to leave the extensor aspect of the joint untouched. Blunt dissection down to the fascia and incision of the fascia was performed. The flaps were not undermined. Defect closure was achieved without any skin-grafting of the donor site.

Results

No wound healing or flap complications were observed but anaesthesia of the distal flap pole occurred. Postoperatively full range of knee joint movement could be preserved.

Conclusion

We present a new type of keystone flap that we, by its oblique design, find to be particularly suitable for coverage of larger defects at joint regions. Therefore we propose an extension of the existing Behan classification - a keystone flap type IIIB

FC

Is there an improvement in post bariatric surgery outcomes? a twenty years comparison in a single center

Bayard I¹, Brühlmann J¹, Lese I¹, Grobbelaar AO¹, Olariu R¹, Constantinescu MA¹

¹ Universitätsklinik für Plastische und Handchirurgie Inselspital Bern

Introduction

The prevalence of obesity in Europe increased over the last decades. Therefore, bariatric surgery and its sequels like body-contouring after weight loss are an expanding field. We evaluated body-contouring procedures after massive weight loss performed at our unit.

Material and Methods

All patients undergoing surgical body-contouring procedures following weight loss between 2013-2019 at our institution were analyzed retrospectively. Only patients with at least 30% excessive body mass index loss (EBMIL) were included in the study. We analyzed demographic data, type of operation, combinations of procedures, risk factors, complications and insurance coverage. The current data were compared to previous cohorts with patients operated between 1997-2001 and 2002-2007.

Results

100 patients met the inclusion criteria. Only 40% of requests for body-contouring with medical indication were accepted by the insurance. Abdominoplasty was the most common procedure performed followed by thigh lift. Two third of cases had additional procedures performed like thigh lift, arm lift, mastopexy, liposuction and hernia repair. Complication rate for minor complications was 37% and 3% major complications. Seroma (13%) and wound dehiscence (25%) were the most common complications. Smokers have a higher overall risk for complications (51 % vs. 29%).

Conclusion

Post bariatric surgery is a raising field. In our cohort, the rate of complications decreased over the last 20 years. Whereas major complications are rare, minor complications like wound healing complications and seromas are common. Insurance coverage of body-contouring after massive weight loss is still a topic of debate.

FC

The V-Y advancement flap: a powerful and simple technique to cover the defect of the face also in elderly patient

Bruehlmann Yves

¹ -

The V-Y advancement flap is a classical local flap that can be used with very good result to cover defects on the face after skin cancer excision. This flap is specially useful to cover defects from the lips but also on other regions of the face. This flap can be applied with local anaesthesia and is of course suitable on old patients. The technical aspect will be shown in detail and some examples will be discussed to illustrate the versatility of this flap.

FC

Stage III melanoma treatment after the MLST-II study: what happens when a positive sentinel lymph node (SLN) is not followed by completion lymphadenectomy?

Brühlmann J.¹, Grobbelaar A.¹, Constantinescu M. A.¹, Olariu R.¹

¹ Universitätsklinik für Plastische- und Handchirurgie, Inselspital, Bern

Background

The MLST-II Study has completely changed the treatment algorithm in stage 3 melanoma patients with a positive SLN finding. There appears to be no increased survival in this group of patients when a SLN is followed by a classic lymphadenectomy. Management of Stage 3 patients at our department of plastic surgery in the Inselspital was adapted accordingly. These patients are now treated with immunotherapy in the department of oncology instead of undergoing a completion lymphadenectomy.

Goal

To evaluate the outcome of our study group regarding the new therapeutic guidelines based on the MLST-II study.

Methods

A retrospective single center chart review of all patients with stage 3 melanoma of the skin, who underwent a surgical resection of the tumor with an appropriate safety distance and a SLN biopsy from Jan 2017 to Dec 2019 was performed. The overall survival rate of these patients were similar to a representative group of patients undergoing lymphadenectomy in the literature. The complication rate of SLN dissections was also evaluated. Survival curves were calculated utilizing Kaplan-Meier curves to generate center specific data.

Results

121 Patients could be included in our analysis. The average age was 66 years and the male/female ratio was 75:46. Only four patients undergoing SLN biopsy had complications requiring revision-surgery. Our study group showed similar mortality rates in stage 3 melanoma patients with positive SLN biopsy without completion lymphadenectomy.

Conclusions

The study findings are comparable to the 3-year follow-up of the MLST-II study of Faries et al. Further investigations and a longer follow-up time is needed.

tions in Medicine) file format and transformed into stereolithographic files (.stl) by using free software. These files were transferred to a standard 3D printing device to produce scalable photopolymer resin copies.

P 3

Soft-tissue coverage for complex elbow and forearm injuries

Chemali Michèle^{Plastic Surgery, CHUV}, Raffoul Wassim^{Plastic Surgery, CHUV}

¹ Plastic Surgery Department, CHUV, Lausanne

Common causes of soft tissue defects of the upper extremity include polytrauma, blast injury, burns and tumor resection. Defects can be simple or complex involving neurovascular and bone injury. Soft tissue coverage for complex defects is challenging with limited local tissue availability. Microsurgical reconstruction is therefore indicated. Upper limb reconstruction can be divided into three segments : arm, forearm and hand. Each segment has its specific needs entailing different strategies and different flaps, with the aim of a viable and functional hand. We will present to you our strategy for complex elbow and forearm injuries which begins with a wide debridement, followed by a second look after 48-72h and final coverage.

FC**Reconstructive surgery in the elderly: indications and limitations***Chemali Michèle^{Plastic Surgery, CHUV}, Raffoul Wassim^{Plastic Surgery, CHUV}**¹ Plastic Surgery Department, CHUV, Lausanne*

Reconstructive surgery in the elderly is challenging but necessary in a population that is living longer – we distinguish between physiologic and chronologic age. Wound healing in the elderly may be impaired due to several factors including physiological changes, comorbidities, malnutrition, infection, neurovascular injury, stress, depression and a weak social support system. Improving wound healing and clinical outcome relies on optimizing all of these factors and respecting several principles, which we will present to you.

FC

Outcome of mesh-based ventral hernia repair with concomitant dermolipectomy over 12 years: a retrospective study

Crugnale AS¹, Klein HJ¹, Giovanoli P¹, Vonlanthen R², Plock JA¹

¹ Klinik für Plastische und Handchirurgie Universitätsspital Zürich;

² Klinik für Viszeral- und Transplantationschirurgie Universitätsspital Zürich

Introduction

While concomitant mesh-based ventral hernia repair and dermolipectomy (MBVHR-DL) are increasingly performed and combined with other procedures, data on complications, patient's risk profile or outcome are scarce.

Methods

Retrospective outcome analysis of patients undergoing a) MBVHR-DL, b) MBVHR-DL+visceral surgeries, or c) MBVHR-DL+ soft tissue surgery at the University Hospital Zurich between 2007 to 2019. Analysis of complication rates (Clavien-Dindo Classification) with a focus on surgical site occurrences (SSO).

Results

We identified a total of 226 patients, with a median age of 48 years (IQR 20) and a BMI 27.5 kg/m² (IQR 9.7) that were stratified according to the three types of surgery. There was no difference in the overall complication rate [$p=0.663$] between these three groups MBVHR-DL [$n=109$], MBVHR-DL+visceral surgery [$n=114$], and MBVHR-DL+soft tissue surgery [$n=13$]. Though, patients after MBVHR-DL+soft tissue surgery demonstrated a higher incidence of major complications (\geq IIIb) as compared to those undergoing MBVHR-DL+visceral surgery [$p=0.020$]. In contrast to hernia types, increased BMI correlated with a higher complication rate [$p=0.002$]. Hernia recurrence was equally low in all groups [2.75% vs 1.92% vs 0%, $p=0.786$].

Conclusion

Our results suggest that MBVHR-DL with combined procedures can be safely performed as there was no difference detected for complication rates and hernia recurrence between groups. While the type of hernia does not seem to influence the outcome, particular attention should be paid to patients with increased BMI.

FC

Impact of gender-confirming chest surgery on the body-image representation of transgender patient during sexual intercourse

de Schoulepnikoff ^CCHUV, plastic and hand surgery department, master student, Raffoul ^WCHUV, plastic and hand surgery department, Professor, di Summa ^{PG}CHUV, plastic and hand surgery department, PD&MER, MD, PhD Consultant, Bauquis ^OCHUV, plastic and hand surgery department, Consultant

¹ CHUV (Centre Hospitalier Universitaire Vaudois)

Background

In gender-confirming chest surgery, hardly any study has evaluated the improvement of the sexual well-being of transgender patients after breast augmentation/removal. This prospective study aims to assess the potential improvement of body-image representation during sexual intercourse after a chest surgery and to compare differences between female-to-male (FtM) and male-to-female (MtF) groups.

Methods

BREAST-Q and BESAQ questionnaires were used to quantify sexual well-being, together with Semmes Weinstein monofilament test to evaluate nipple areolar complex (NAC) sensation. Different follow-ups were considered: pre-op, 4 and 12-months post-op.

Results

15 FtM and 9 MtF patients were enrolled. Similar pre-op scores between the two groups were observed for all variables tested by questionnaires. Conversely, a significantly lower pre-operative sensation at the NAC level was measured in FtM group.

For both FtM and MtF, the preliminary 4-month post-op evaluations showed a strong improvement in terms of psychological well-being, breast satisfaction and body-image representation during sexual intercourse, compared to pre-op values.

Conclusion

The gender-confirming chest surgery brings a noticeable improvement of chest satisfaction, sexual and psychosocial well-being already 4 months after chest surgery, despite lack of NAC sensation recovery and relative scar hypertrophy. Longer time points are under evaluation to establish potentially correlations or differences between FtM or MtF surgical outcomes ranging from the aesthetic aspect of the surgery, the body-image representation during sexual intercourse and NAC sensory recovery.

P 8

The lymphatic flow-through (LyFT) flap: proof of concept of an original approach
di Summa G. Pietro¹, Wassim Raffoul¹, Guillier David²

¹ Department of Plastic and Hand Surgery, University Hospital of Lausanne (CHUV), (CH);

² Department of Plastic, maxillofacial and Hand Surgery, University Hospital of Dijon (FR)

Introduction

Oncologic debulking surgeries at the inguinal area carries high risks of postoperative morbidity such as wound healing issues, lymphorrhea, bacterial contamination, and secondary lymphedema. We developed a new reconstructive concept using a flap pedicle run-off as recipient vein for multi lymphatic into vein (MLVA) anastomoses, shunting the lymphatics through the flap, assuring soft tissue coverage and lymphatic flow restoration in the same procedure.

Methods

From January to May 2019, four patients with oncologic debulking at the groin with active lymphorrhea and increasing lymphedema were operated with ALT pedicled flap with LyFT approach. Angio-CT and lymphoscintigraphy were performed before surgery. Lymphovenous shunts were performed by MLVA technique into 2 comitans veins of the descending branch of the the lateral circumflex femoral artery. Pre and postoperative quantitative data included lymphoscintigraphic changes, drainage volume/per day and limb volume evaluation by perometer.

Discussion

A sudden cease of lymphorrhea was observed in all cases. One patient presented a bacterial contamination with infection requiring washout and IV antibiotics, with uneventful healing. Follow up at 6 months showed a decrease of the excess limb volume objectivated by perometer measurements, with an improvement of skin pliability. Postoperative lymphoscintigraphies confirmed the amelioration of the clinical picture.

Conclusion

The LyFT approach is a new and effective new solution in those cases requiring restoring of the lymphatic drainage while needing soft tissue groin reconstruction, reducing complications after groin debulking procedures

P11**The periosteal-cutaneous chimeric medial femoral condyle free flap for subtotal ear reconstruction**

di Summa G. Pietro¹, Zaugg Patrice², G Sapino. Guillier David³, Wassim Raffoul¹

¹ Department of Plastic and Hand Surgery, University Hospital of Lausanne(CHUV)(CH);

² Department of Plastic and Hand Surgery, Cantonal Hospital of Sion (CH); ³ Department of Plastic, Maxillofacial and Hand Surgery, University Hospital of Dijon (FR)

Introduction

Traumatic or congenital total/subtotal loss of substance and cartilage framework of the ear are best addressed by reconstruction using rib cartilage. We present here a case of a 29 y.o. patient who had total loss of the upper 2/3 of the right ear after bombing in Somalia and secondary infected condritis. The patient refused both epitheses and rib cartilage harvest.

Methods

After CTscan 3D planning of the contralateral ear, we decided to harvest a FMC free flap to reconstruct the almost totally missing ear. The chimeric FMC flap was harvested with a skin paddle deriving from the descending genicular artery. A thin sheet of femoral cortex was used as basal ear frame, while part of the contralateral concha was trimmed as support for the helix, with the periosteal component of the flap wrapping around the whole framework. Once shaped the construct, the flap was sutured to the facial vessels. Postoperative course was uneventful. At 8 weeks postop we performed a defatting procedure and at 6 months the patient was satisfied with the result, could wear glasses and was socially integrated.

Discussion and Conclusion

This solution, despite being of course not the primary choice for ear reconstruction and requiring solid microsurgical skills, guaranteed satisfactory results in terms of ear shape, and infection prevention. This new application of the FMC chimeric free flap can be considered in selected cases when ordinary cartilage rib reconstruction is refused, contraindicated, or failed.

FC

Silicone migration to the contralateral breast and axillary nodes after implant rupture: ccase report, literature review and therapeutical algorithm

Elahi Leslie¹, Raffoul Wassim¹, Koch Nathalie¹

¹ Department of Plastic, Reconstructive and Hand Surgery, University Hospital of Lausanne (CHUV)

Introduction

Silicone implants were developed in 1962 for breast augmentation and became essential in reconstruction after mastectomy. Silicone « bleeding » has been described from both ruptured and intact implants and can induce disseminated granulomatosis due to the component's high fat solubility. If not adequately treated, they can lead to disastrous cosmetic and functional consequences and in rare cases, can be life threatening. Finally, since they may mimic malignancy, prompt and reliable diagnosis should be made as early as possible.

Case report

A 45-year-old woman diagnosed with breast carcinoma underwent a right mastectomy followed 3 years later by silicone implant reconstruction and left symmetrization. The implant was replaced 13 years later because of capsular contraction. At that time, MRI and mammography showed two lesions in the right breast, two in the left breast and one lesion in the left axillary node. PET-CT revealed the hypermetabolic nature of the lesions and needle-biopsy excluded malignant recurrency but was consistent with a granulomatous reaction to a foreign body, silicone. The patient was otherwise asymptomatic and siliconoma's management remained observational.

Discussion

Silicone migration to the contralateral breast and lymph node is rare and has seldom been described. The mechanism is still debated. Excluding malignancy is a priority and systematic management must be respected to avoid misdiagnosis or unnecessary exams.

Conclusion

A multidisciplinary approach should guide siliconoma's management. Assessment for patients with implants who present with a breast or axillary nodule should include MRI and needle biopsy for appropriate diagnosis.

FC

Stem cells derived from burned skin: a potential future reconstructive treatment

Eylert Gertraud^{1,2,3,*}, Dolp Reinhard^{1,4,*}, Amini-Nik Saeid^{1,5,6}, Auger Christopher¹, Parousis Alexandra¹, Datu Andrea-Kaye¹, Jeschke Marc G.^{1,6,7}

¹ Sunnybrook Research Institute, University of Toronto, Canada; ² Division of Plastic, Aesthetic and Reconstructive Surgery, Medical University of Graz, Austria; ³ Department of Plastic and Hand Surgery, Inselspital, Bern University Hospital, Switzerland; ⁴ Department of Psychiatry, Queen's University, Kingston, Canada; ⁵ Department of Laboratory Medicine and Pathobiology (LMP), University of Toronto, Canada; ⁶ Ross Tilley Burn Centre, Sunnybrook Health Sciences Centre, Toronto, Canada; ⁷ Division of Plastic and Reconstructive Surgery, Department of Surgery, Faculty of Medicine, University of Toronto, Canada

Introduction

A burn is a devastating injury and affects millions of people worldwide. Deep and full-thickness tissue from these injuries are routinely excised and discarded. Recently, it has been shown that this discarded burned skin contains viable cells. However, little is known about these cells regarding characteristics and function. We hypothesis that burned skin contains functional mesenchymal stromal/stem cells (MSCs) (burn derived-MSCs, BD-MSCs) that promote wound healing.

Methods

Cells were isolated from surgically debrided full-thickness burned tissue and were analyzed for biological key characteristics using immunophenotyping and multi-lineage differentiation. Furthermore, cells were expanded and incorporated into a carrier scaffold, and grafted on created large full-thickness wounds onto pigs. A comparison was made to an acellular control. Wounds were histologically analyzed on day 28.

Results

We found that cells from burned tissue fulfill the characterization criteria of MSCs. Wounds treated with BD-MSCs showed significantly accelerated reepithelialization, reduced scarring, enhanced epidermal and dermal regeneration, increased neovascularization, reduced inflammation and reduced fibrosis (p

P 9

Increasing efficiency in autologous breast reconstruction

Fertsch Sonia¹, Lardi Alessia¹, Baust Doris¹, Hürlimann Valeska¹, Speck Nicole¹, Farhadi Jian¹

¹ Plastic Surgery Group by Professor Farhadi, Zürich

Background

Breast reconstruction is a multi-disciplinary process, involving many steps from the diagnosis of breast cancer to the ultimate reconstruction of the breast. As a highly specialized center in breast surgery with an experience of over 2000 autologous breast reconstructions, we have fine-tuned our approach in free flap based breast reconstruction to maximally enhance the efficiency in our treatment.

Methods

The general approach to autologous breast reconstruction was broken down into multiple smaller segments and analyzed individually under the aspect of refining the efficiency of each given process in order to create a reproducible and standardized system for a safe and maximal efficient treatment. All processes are listed detailed and specific times are demonstrated for the year 2019, in which a total of 128 autologous reconstruction were performed. 55 procedures occurred in a public hospital, 73 in a private setting. For the study the hospital with the higher case load was chosen for data analysis to avoid bias due to using data from different hospitals.

Results

2-3 free flap reconstructions are performed per day. The data of 73 cases show a low complication rate of < 1%. Average surgery duration ranges from 3 – 3.5h for unilateral reconstruction and 5h for bilateral. The hospital stay is 5 days for uni- or bilateral reconstructions. There is no statistical significant difference in duration of surgery in immediate (average time: 3.59h) or delayed reconstruction (3.41 h).

Conclusions

We have created a safe, clear and standardized system to autologous breast reconstruction for maximal efficiency which is easy reproducible in other clinical settings.

FC

The future of interfaces in bionic reconstruction: a fully implantable myoelectric system

Festini C¹, Gstoettner C¹, Bergmeister KD¹, Salminger S^{1,2}, Prahm C¹, Aman M¹, McDonnell D³, Hofer C⁴, Russold M⁴, Farina D⁵, Aszmann OC^{1,2}

¹ Clinical Laboratory for Bionic Extremity Reconstruction, Department of Surgery, Medical University of Vienna, Vienna, Austria;

² Division of Plastic and Reconstructive Surgery, Department of Surgery, Medical University of Vienna, Vienna, Austria;

³ Ripple LLC, Salt Lake City, Utah, USA;

⁴ Otto Bock Health Care Products GmbH, Vienna, Austria;

⁵ Department of Bioengineering, Imperial College London, London, United Kingdom

Introduction

Bionic reconstruction has proven to be a valid therapeutic option for cases of severe upper limb defects in which biological reconstructive procedures are unable to restore function. Currently, myoelectric prostheses are typically controlled by surface EMG signals of remnant stump muscles. However, the low selectivity and varying quality during signal acquisition heavily impact prosthetic control making it both cumbersome and unintuitive. Implantable electrodes are placed on or in a muscle and may overcome the issues of transcutaneous signal acquisition.

Material and methods

In cooperation with Ripple Neuro (Salt Lake City, USA), we evaluated a fully implantable myoelectric system in both a cadaver and large animal study. The implanted system consists of a central electronic piece gathering information from 32 intramuscular electrode contacts. The EMG signals are telemetrically sent to an external receiver and can then be used for prosthetic control.

Results

The system was implanted in sheep for 5 months and demonstrated both mechanical stability and functionality as well as excellent EMG signal quality of the different muscles. The cadaver study provided a proof-of-concept for the implantation of this system at different amputation levels of the upper extremity.

Conclusion

Based on our results, this system has the potential to overcome many issues currently seen in myoelectric prosthetic control. When combined with selective nerve transfers, this opens the possibility of acquiring a previously unattainable amount of myoelectric control signals which will greatly improve precision and intuitiveness of prosthetic limb control.

FC

Is there a role for the pedicled groin flap in today's reconstructive surgery of the hand?

Fischlin C¹, Merky D², Surke C², Vögelin E², Constantinescu M¹, Olariu R¹

¹ Klinik für Plastische- und Rekonstruktive Chirurgie, Inselspital Bern;

² Klinik für Handchirurgie, Inselspital Bern

Introduction

With today's expanding possibilities of microsurgical reconstruction, the use of distant pedicled flaps for reconstruction of hand and finger defects is decreasing. However, a certain group of patients and defects might benefit from this classical reconstruction technique. Our aim is to assess the conditions under which a pedicled flap might still be a sound reconstructive solution.

Method

A retrospective chart review of all patients with hand defects who underwent reconstruction with distant flaps from May 2017 to May 2020 in our unit was conducted with special focus on the specific conditions that influenced the reconstructive decision.

Results

We identified 4 patients who received a distant suprafascial groin flap for hand- and or finger reconstruction. All patients were male and all defects were post-traumatic. In 2 of 4 patients the defect included multiple digits and 3 patients had complex microsurgical revascularization procedures previous to the distant flap reconstruction. All flaps survived and there was no further major reconstructive surgery, however a mean of 1.75(1-4) follow-up surgeries / patient were performed for final flap inset. An excellent contour reconstruction was achieved.

Conclusion

The use of pedicled groin flaps remains an exception for hand reconstruction in our unit. However, in cases of defects after complex microsurgical reconstruction and / or in multiple digits, a pedicled groin flap can be a simple and useful reconstructive method, which does not endanger previous complex microsurgical revascularization results while ensuring the required aesthetic and functional outcome.

FC

Our experience with the anterior interosseous artery perforator flap for local and distant soft tissue reconstructions

Franchi A¹, Scaglioni MF¹, Fritsche E¹

¹ Department of Hand- and Plastic Surgery, Lucerne Cantonal Hospital, Lucerne, Switzerland

Introduction

The anterior interosseous artery perforator flap was introduced for the first time in 1989 by Martin and his colleagues, however, it never gained great popularity and the literature about this flap is limited. In our institution, we successfully used this flap both as a local as well as a free flap to reconstruct different defects throughout the body and we could appreciate its favourable characteristics in selected cases. The aim of the present study is to share our experience with this uncommon flap.

Patients and Methods

We collected and analysed all the cases treated in our institution (Lucerne cantonal hospital) in which an anterior interosseous artery perforator flap was used.

Results

7 pedicled and 9 free anterior interosseous artery perforator flaps were transferred to cover local and distant soft tissue defects. 14 out of 16 flaps survived completely. 1 total and 1 partial (10%) flap necrosis and 1 donor site dehiscence were observed, the latter two did not require surgical revision.

Conclusion

The relatively long pedicle and the limited thickness of this flap are two characteristics that can be extremely useful to close shallow defects in different body regions, especially in patients with abundant subcutaneous fat tissue that prevents the use of other bulkier flaps from other body regions. Flap dissection is relatively easy and does not require the sacrifice of a major artery.

In our opinion, the anterior interosseous artery perforator flap should not be neglected and should be part of the armamentarium of the plastic surgeon.

P7

Tensor fasciae latae flap for the reconstruction of the ilioinguinal ligament after extensive inguinal resection for soft tissue sarcomas

Fries S¹, Plock J², Lindenblatt N², Theus C¹, Fuchs B^{1,2,3}

¹ Luzerner Kantonsspital, Klinik für Orthopädie und Unfallchirurgie;

² Universitätsspital Zürich, Klinik für Plastische Chirurgie;

³ Kantonsspital Winterthur, Klinik für Orthopädie und Traumatologie

Purpose

The ilioinguinal ligament (IL) is a band of connective tissue running from the pubic tubercle to the anterior superior iliac spine (ASIS). It forms the inguinal canal and is important to maintaining the flexibility of the hip region while allowing vital blood and nerve supply to the leg. If the IL needs to be resected, patients may suffer from complications most often hernias. To the best of our knowledge, a reconstruction of the IL using a tensor fasciae latae flap has not been reported to date.

Method

A 45-year-old female suffering from schwannomatosis diagnosed ten years ago, noticed a painful swelling in her left groin, edema of the thigh and a new paresthesia of her left leg. A core-needle biopsy of the tumor revealed a malignant peripheral nerve sheath tumor (MPNST) of the proximal thigh. The decision of a neoadjuvant radiation therapy with 50Gy and a total tumor excision was made.

Results

We performed a complete tumor resection including the IL, the femoral artery and nerve as well as the iliopsoas muscle and the ventral capsule of the hip joint through a longitudinal incision. The femoral artery was reconstructed with a graft. After dissection of the ASIS with the insertion of the tensor fasciae latae muscle, the IL was reconstructed with a pedicled flap of the tensor fasciae latae by anker fixation at the symphysis. The remnants of the abdominal wall tendons were reattached to the neo-inguinal ligament. Finally, a vertical rectus abdominis musculocutaneous flap was used to close the situs.

Conclusion

Reconstruction of the ilioinguinal ligament with a tensor fasciae latae flap after extensive inguinal resection is technically possible.

FC**Tribute to Takeoshi Honda or the role of microvascular flow-through free flaps in the treatment of severely injured upper extremities including amputations**

Fritsche Elmar^{Hand- und Plastische Chirurgie Kantonsspital Luzern}, *Scaglioni Mario*^{Hand- und plastische Chirurgie Kantonsspital Luzern},
Franchi Alberto^{Hand- und Plastische Chirurgie Kantonsspital Luzern}

¹ *Klinik für Hand- und Plastische Chirurgie, Kantonsspital Luzern*

Introduction

The Japanese microsurgeon Takeoshi Honda introduced for the first time a free through-flow flap in the treatment of a severely injured digit. This milestone in the reconstructive hand surgery has never been adequately honored.

Material and Method

We used this technique of free microvascular through-flow free flaps in 10 cases of severely injured upper extremities including amputated digits. In all cases the flaps are operated as emergency free flaps and helped to save the amputated digits, the amputated parts of the hands or even the whole hands. We used in most cases the ALT through-flow flap or for the digits the AIA through-flow flap. All flaps survived. We will present our case series.

Conclusion

The use of the through-flow technique of free flaps can be of crucial importance in the treatment of hand and upper extremity injuries and can save severely injured digits and hands which otherwise would be lost. We honor with our presentation Takeoshi Honda from Japan who introduced this principle in the field of reconstructive hand surgery

FC

Angiogenic and lymphangiogenic effects of adipose tissue-derived microvascular fragments in a mouse lymphedema model

Frueh FS^{1,2}, Gassert L¹, Müller A³, Fries P³, Scheuer C¹, Ampofo E¹, Giovanoli P², Lindenblatt N², Rübe CE⁴, Menger MD¹, Laschke MW¹

¹ Institute for Clinical and Experimental Surgery, Saarland University, Homburg/Saar, Germany;

² Department of Plastic Surgery and Hand Surgery, University Hospital Zurich, Zurich, Switzerland;

³ Clinic of Diagnostic and Interventional Radiology, Saarland University Medical Center, Homburg/Saar, Germany;

⁴ Department of Radiotherapy and Radiation Oncology, Saarland University Medical Center, Homburg/Saar, Germany

Introduction

Recently, reconstructive microsurgery has improved the prognosis of lymphedema (LE). Preclinical approaches, such as stem cell transplantation, have already been investigated. We herein introduce adipose tissue-derived microvascular fragments (ad-MVF) for the treatment of murine LE.

Material and Methods

Hindlimb LE was induced in C57BL/6 mice using irradiation and popliteal lymphadenectomy. Three days after surgery, ad-MVF were implanted into the lymphatic defect. Ad-MVF were isolated from the epididymal fat of green fluorescent protein+ mice. Collagen hydrogel was used as carrier material. Hence, three groups were investigated: Sham, collagen hydrogel and ad-MVF/collagen hydrogel (n=10/group). Limb volume was assessed by means of paw thickness measurements and lymphatic regeneration was visualized by magnetic resonance lymphography (MRL). At the end of the experiments at day 28, histology and immunohistochemistry were performed for the evaluation of blood and lymphatic vessel density.

Results

Paw thickness in the ad-MVF group was significantly lower on day 28 after lymphadenectomy compared with the sham group. Moreover, MRL revealed a faster regeneration of the popliteal lymphatic network and drainage into the inguinal lymph node. We also found a markedly reduced dermal backflow in the ad-MVF group. Immunohistochemistry revealed that ad-MVF were associated with an increased microvascular and lymphatic vessel density.

Conclusion

Ad-MVF are a promising strategy to enhance lymphatic regeneration in a mouse model. However, from a translational perspective, future studies are required to further elucidate the role of ad-MVF as angiogenic and lymphangiogenic units.

FC

Quantification of lymphatic function using lymphatic-specific ICG-HSA and a custom portable device, LymphMeter 1.0, in lymphedema patients

Gousopoulos E, Polomska A, Fehr D, Bachmann A, Giovanoli P, Bonmarin P, Detmar M, Lindenblatt N

¹ Clinic of Plastic and Hand Surgery, University Hospital Zurich, Zurich, Switzerland;

² Swiss Federal Institute of Technology (ETH Zürich), Institute of Pharmaceutical Sciences, Zurich, Switzerland;

³ Zurich University of Applied Sciences, School of Engineering, Institute of Computational Physics, Winterthur, Switzerland

Background

Lymphedema is the consequence of impaired lymphatic vessel function, usually following the surgical oncologic treatment including lymph node dissection. While still lacking a curative therapy, early detection would ensure timely intervention, thus delaying or inhibiting the progression of the disease.

Methods

The aim of this project is to develop and test a non-invasive method to quantify the lymphatic vascular function. For this purpose, indocyanine green solution in human serum albumin (ICG-HSA) is noninvasively delivered to the dermal layer using hollow microneedles, Micron-Jet600TM, and the fluorescence signal decay at the injection site (clearance) was measured over time using a custom-made, portable detection device, LymphMeter 1.0.

Results

The decay rate of fluorescence signal in the skin was used as a direct measure of lymphatic vessel drainage function. With this method the impaired lymphatic clearance in transgenic mice lacking dermal lymphatics was quantified. What is more we could distinguish distinct lymphatic clearance patterns in pigs in different anatomic locations and under manual stimuli. Currently a proof-of-concept clinical study using 10 lymphedema patients is ongoing to investigate if using this technology the impaired clearance of the diseased limbs can be detected and to evaluate the possible correlation between clearance and degree of swelling.

Conclusions

Our method offers a simple and non-invasive procedure to evaluate lymphatic function. The robust pre-clinical data strongly suggest the feasibility of the method, which is currently tested in a clinical setup with promising results.

FC

Chin augmentation techniques: a comprehensive literature review

Grufman V^{1,2}, Oranges C.M.¹, Fritsche E², Kalbermatten D.F¹

¹ Department of Plastic, Reconstructive, Aesthetic and Hand Surgery, Basel University Hospital, University of Basel, Basel, Switzerland;

² Division of Hand and Plastic Surgery, Cantonal Hospital of Lucerne, Lucerne, Switzerland

Introduction

Chin augmentation has gained increasing popularity over the past decade. The aim of this study was to perform a comprehensive literature review to determine outcomes and complications associated to the different techniques described.

Material and Methods

The PubMed/Medline database was searched using the following algorithm: ("chin augmentation" or "genioplasty" or "mentoplasty") AND ("augmentation" or "reconstruction" or "genioplasty/methods"). The techniques were classified and the related outcomes and complications tabulated and analyzed.

Results

49 studies on primary chin augmentation published from 1965 to March 2020 met inclusion criteria, representing 4874 treated patients. Six main surgical techniques were identified: chin augmentation with implants (Silastic, Gore-Tex, Mersilene, Medpor; n= 3234), osteotomy (n= 885), autologous grafts (fat/bone/dermal/cartilage; n = 371), injections (hyaluronic acid, Botox, biphasic polymer; n= 224), combination of implants placement and osteotomy (n= 128), and local tissue rearrangements (n= 32). All techniques provided consistently satisfactory cosmetic outcomes. The total complication rate was 13.3%, while the most frequent complications were transient nerve related injuries (4.5%), bone resorption (2.2%) and transient erythema (1%).

Conclusions

All described chin augmentation techniques achieved good outcomes with high patient satisfaction and low complication rates. Each technique must be tailored according to clinical presentation and patient's needs. Caution is needed to avoid nerve injuries and potential over- or under-correction.

FC

Bioglass coating of silicone implants as a novel strategy to prevent bacterial colonization

Grünherz Lisanne¹, Kania Gabriela², Schmid Andrina³, Brühwiler Dominik³, Lindenblatt Nicole¹, Lehmann Steffi³,

¹ Department of Plastic and Reconstructive Surgery, University Hospital Zurich;

² Department of Rheumatology, Center of Experimental Rheumatology, University Hospital Zurich;

³ Section for Pharmaceutical Technology and Pharmacology, Zurich University of Applied Sciences.

Introduction

Capsular contracture (CC) accounts for the most common complication after breast augmentation with silicone implants. The formation of a bacterial biofilm on the silicone surface is one major driver, triggering a chronic inflammatory response that stimulates an excessive fibrotic response. We therefore aim to establish a bioglass coating for breast implants which prevents bacterial colonization and reduces the risk of CC.

Material and Methods

Smooth and textured implants were coated with bioactive glass particles (Bioactive Glass Vitryxx®, 45S5; mean particle diameter 15.5 µm). Afterwards scanning electron microscopic (SEM) imaging and mechanical stress tests were performed, followed by cultivation of 3T3 mouse fibroblasts cells on bioglass coated surfaces. To assess its antimicrobial activity, different concentrations of bioglass particles were incubated with suspension cultures, containing either *S. aureus* or *S. epidermidis*.

Results

Mechanical stress tests showed minor loss of glass particles after integration into the silicone surface. SEM imaging confirmed a homogenous distribution on both implant surfaces. The cultivation of 3T3 mouse fibroblasts showed no impact on growth or cell viability. The half maximal inhibitory concentration (IC50) was 17.64mg for *S. aureus* and 9.60mg for *S. epidermidis*.

Conclusion

Bioglass particles have successfully prevented bacterial growth in first in vitro experiments. Thus, this novel coating strategy has a high potential to reduce the risk for CC. Future experiments include cultivation of primary fibroblasts on coated surfaces and analysis of the primary inflammatory response by quantification of cytokines.

FC

The synergic effect of extra-cellular matrix (ECM) and hADSC pre-expanded in human platelet-lysate serum: an encouraging route towards clinical translation in peripheral nerve repair

Guiotto Martino^{1,2}, Raffoul Wassim¹, Hart Andrew², Riehle Mathis², di Summa Pietro¹

¹ Department of Plastic, Reconstructive and Hand Surgery, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland;

² Centre for the Cellular Microenvironment, University of Glasgow, United Kingdom

Introduction

In peripheral nerve injury, the ECM provides biological, physical and chemical cues, to sustain Schwann cell activity in growth factors secretion, myelination and axonal elongation, through specific protein-to-cell-to-axon interactions.

We focused on the therapeutic potential of mimicking the single ECM-component (Laminin (LN), Fibronectin (FN) in a combinatorial strategy with human derived stem cells expanded in the human platelet lysate (hPL-hADSC).

Material and Methods

hADSC were grown on different ECM-coating (LN, FN or no-coated) in presence of hPL, and cocultured in presence of primary neurons to establish the intrinsic effects of cell-ECM contact on neurite maximal length, axonal area and number of growth neurites. Cocultures were performed in direct contact with neurons or "indirect", were neurons were treated with conditioned medium of the cells grown on the ECM molecules. ELISA were performed on the respective secretomes to quantify the neurotrophic factors (BDNF, NGF, GDNF) release.

Results

hPL did not directly promote higher axonal elongation than FBS in a single DRG culture (alone). However, co-culturing hPL-hADSC (direct) or their secretome (indirect) with DRG increased significantly neurite outgrowth compared to FBS-hADSC. Moreover, LN positively impacted on the DRG sprouting in all three hPL-culture conditions (alone, direct and indirect co-cultures), accreting the hADSC secretion of the three neurotrophic factors analysed.

Conclusion

HPL-hADSC act synergistically with LN, strengthening cells proliferation and further promoting their neurotrophic properties with favorable outcomes in vitro which encourage the extension of this strategy in vivo.

FC**Subfascial composite breast augmentation using highly elastic nano-textured implants and autologous fat grafting***Harder Y¹, Weinzierl A¹, Thürlimann A¹, Alfonso Coto JC¹, Alberti AM¹, Schmauss D¹**¹ Department of Plastic, Reconstructive and Aesthetic Surgery, Ente Ospedaliero Cantonale (EOC), Ospedale Regionale di Lugano, Lugano, Switzerland*

Breast implants represent the most important development in plastic and reconstructive surgery during the last 50 years. Nonetheless, the total revision rate for breast implants amounts up to 36% at the 10 year. Many revisions occur for soft-tissue related problems rather than for implant failure itself. Subfascial implant placement for breast augmentation has been advocated as an option to combine some of the advantages of both, the subglandular and the subpectoral approach, while minimizing their disadvantages, i.e. implant visibility ("contour and rippling") and palpability respectively implant dislocation and breast animation. The study aim was to evaluate our 5-year experience for composite breast augmentation (cBA) using round implants (MOTIVA ERGONOMIX®) in combination with autologous fat grafting in a teaching hospital.

36 bilateral cBA were performed between Jan 2015 and Dec 2019 in patients aged 23-38 years with a mean BMI of 22kg/m² and follow-up time of 26 months respectively. Following results were achieved (mean/range): Surgical time: 80min (65-120); implant volume: 317ml (285-360); injected fat volume: 143ml (100-180). In addition, 1 self-limiting seroma, 1 palpable but asymptomatic fat necrosis and 1 transient hyposensitivity of the NAC were observed. Neither rippling nor visibility of the implant were recorded, resulting in high patient satisfaction with little foreign body sensation.

In conclusion, this technique is easy and safe to perform. Further, cBA is associated with low postoperative pain and rapid recovery, yielding high patient satisfaction and potentially avoiding drawbacks of both subglandular and subpectoral breast augmentation.

FC

Concomitant high-intensity focused ultrasound and immediate micro-shuttle body threading: Innovative hybrid approach for lunchtime body contouring

Huang Wen Hsien Ethan¹, Hsu Tien Yen¹, Chang Hui Chin¹

¹ GeneHope Medical Aesthetics Group

Background

Obesity can not only affect outer appearance but physical and mental health as well. Traditional abdominoplasty require long recovery time and leave unpleasant scars. Along with advances in body thread lift techniques and materials, ancillary energy-based procedures such as high-intensity focused ultrasound (HIFU) and radiofrequency (RF) have been performed simultaneously.

Objectives

In this study, we explored an innovative and effective way to determine the effect of such combined procedures on the outcome of lunchtime body contouring. METHODS: From Jun 2016 to May 2019, 65 patients presenting with mild or moderate obesity were enrolled in this study. For optimum aesthetic results, we performed high-intensity focused ultrasound (HIFU) with tumescent local anesthesia on the whole abdomen first. Later upper abdominal lifting with plain PDO thread equipped with innovative micro-shuttle needle to the superficial fascias and linea alba was done. Another 8-10 ancillary free-floating barbed sutures were smoothly applied into the low abdomen. Tummy-control shapewear is routinely suggested for at least 2-4wks. Postoperative changes and complications were evaluated.

Results

Patient self-assessment showed that 85% of patients were very satisfied, 10% were satisfied, and fair for 5%. There were no cases of tissue necrosis or surgical wound dehiscence.

Conclusion

With its short recovery time and long-lasting effect, the procedure is worth popularizing.

FC

Complications arising from aesthetic surgery procedures in foreign countries and Switzerland

Hummel C¹, Klein HJ¹, Giovanoli P¹, Lindenblatt N¹

¹ Department of Plastic Surgery and Hand Surgery, University Hospital, Zurich

Background

There is increasing popularity of cosmetic surgery tourism. Arising complications and post-operative follow-up care are often handled in the home country burdening the Swiss health care system.

Methods

We retrospectively reviewed patients between 2015 and 2019 with complications after cosmetic surgery abroad and - for comparison - in Switzerland treated at the University Hospital Zurich. Data collection was carried out with the help of a data query from the clinic information system. Medical records for patients' characteristics including performed operations, complications, and treatment were reviewed.

Results

A total of 228 patients were identified (207 females and 21 males). The mean age among women was 40.9 ± 12.0 years and among men 34.3 ± 8.9 years. Most procedures were performed in Europe 69%. Thirty-six patients (16%) presented themselves after a procedure undertaken in Switzerland. Breast augmentation was the most frequently performed procedure (42%), followed by body contouring (17%) and facial surgery (12%). The most common complication was aesthetic dissatisfaction (23%) and pain/discomfort (17%). Most patients (76%) were treated as out-patients.

Conclusions

There is an ongoing trend of cosmetic tourism leading to an increasing number of treated complications in the home country. In contrast to previous research of our group, there are more males claiming cosmetic surgery abroad while the most common complications changed from wound breakdown and infection to now aesthetic dissatisfaction – possibly indicating ameliorated patient care abroad.

FC

Burns in the elderly : what management ?

Jolliet Sophie^{Université de Lausanne}, Prof. Raffoul Wassim^{Service de chirurgie plastique et reconstructive, CHUV}

¹ Service de chirurgie plastique et reconstructive, CHUV.

Introduction

The elderly are a constantly growing population and this will impact the management of burns. Increased frailty and complex social-health background demonstrate the relevance of elaborating specific and adapted approaches for them. Geriatric burns outcomes have improved during the last decades but not as much as in the younger population. How could it be explained? What could make outcomes better?

Materials and Methods

In this study, we first constituted a literature review based on 85 articles. Then, 40 semi-directive interviews took place with actors involved in our issue. Finally, in order to perform a database, we analyzed retrospectively all patients ≥ 65 years old admitted to CHUV Burn Centre between 2014-2018.

Results

43 patients were included in our study. Median %TBSA was 16.50% and the incidence of inhalation injury was 46.5%. The mortality was 34.9%. The mean ICU length of stay was considerably higher (1,92 days/%TBSA) than the expected value of ≤ 1 day/%TBSA. No medical structure systematically assures rehabilitation after the hospitalisation. 30.2% of the patients were transferred to peripheral centres, 23.3% discharged at home and only 3 out of 43 were suitable for a rehabilitation structure.

Conclusion

The elderly constitute a unique population that can't be defined only by age. In order to improve outcomes, our study suggests to integrate systematically a geriatrician in the care of burns and to use a Frailty Score for prognosis. Moreover, creating a geriatric burn team would allow a long-term follow-up and highlight their quality of life. Design new prospective studies would aim to define, in an accurate way, burns in the elderly.

FC

Bone reconstruction in the upper extremity other than the scaphoid with the free vascularized medial femoral condyle flap

Kaiser Benedict¹, Gohritz Andreas¹, Mende Konrad¹, Ilario Fulco¹, Schaefer Dirk J. ¹,
Kämpfen Alexandre ¹

¹ Plastic, Reconstructive, Aesthetic and Handsurgery at the University Hospital Basel;

²

Introduction

Vascularized bone transfer is usually indicated for reconstructions in large bone defects (>6cm) due to tumor resection, traumatic bone loss, osteomyelitis, or infected nonunion. In smaller defects (

FC

Donor site aesthetics and morbidity after DIEP flap breast reconstruction: a retrospective multicentre study.

Keijzer WW^{1,3}, Grünherz L², Uyulmaz S², Fertsch S², Imhof L⁴, Käser S⁵, Farhadi J^{1,3}, Lindenblatt N²

¹ Plastic Surgery Group, Zurich, Switzerland;

² Department of Plastic and Reconstructive Surgery, University Hospital Zurich; Zurich, Switzerland;

³ Department of Plastic and Reconstructive Surgery, Guy's and St. Thomas Hospital; London, United Kingdom;

⁴ Department of Dermatology, University Hospital Zurich; Zurich, Switzerland;

⁵ Department of Visceral and Transplantation Surgery, University Hospital Zurich; Zurich, Switzerland

Introduction

The DIEP flap has gained widespread popularity in autologous breast reconstruction due to its natural aesthetic results and muscle-sparing design. However, donor site results regarding aesthetic outcome are often less favourable. Our objective was to identify factors that might increase the risk for abdominal bulging and an impaired aesthetic appearance.

Material and methods

We conducted a retrospective multicentre study evaluating all patients receiving autologous breast reconstruction using a DIEP flap between 2013 and 2017. Medical records of all patients were analysed on number of perforators, localisation of perforator and donor-site complications. In addition, the aesthetic appearance of the abdominal donor site was evaluated by a blinded clinician at one-year follow-up.

Results

We performed breast reconstruction using a DIEP flap in 242 patients. Abdominal bulging occurred in 7%. Further subgroup analysis revealed a significant correlation between abdominal bulging and two or more perforators ($p = 0.003$), the use of lateral row perforators ($p = 0.009$) and a higher BMI ($p = 0.002$). Based on the analysis of patients with an undesirable appearance of their donor site, obesity and a higher age could be identified as risk factors.

Conclusion

Based on the results of our study we recommend the use of a medial-row single perforator whenever possible in order to optimise the aesthetic outcome of the donor site, in particular to decrease the risk of abdominal bulging. Appropriate patient selection and careful donor site closure following a standardised approach should be performed in order to limit the risk of aesthetically undesirable results.

FC**The posterior arm flap for axillary reconstruction after wide excision in patients with acne inversa**

Klein HJ¹, Ismail T², Tereshenko V¹, Gass S², Schweizer R¹, Waldner M¹, Kim BS¹, Lindenblatt N¹, Schaefer DS², Giovanoli P¹

¹ Department of Plastic Surgery and Hand Surgery, UniversitätsSpital Zürich;

² Department of Plastic, Reconstructive, Aesthetic, and Hand Surgery, Basel University Hospital

Background

Axillary acne inversa is a debilitating, chronic-inflammatory disease of the hair follicles in apocrine gland-rich areas. Radical excision is the only curative therapeutic approach leaving large axillary defects with need for adequate soft tissue reconstruction.

Method

Description of operative technique and two-center, retrospective outcome analysis of patients with axillary acne inversa and subsequent reconstruction with the posterior arm flap between 2018 and 2020 at the University Hospital Zurich and the University Hospital Basel.

Results

en patients (mean age 36 ± 12 years, mean BMI 33 ± 5 kg/m², Hurley stage II/III) with 17 posterior arm flaps for axillary reconstruction were included. Mean operation time was 173 ± 40 minutes for bilateral wide excision and flap coverage. Four patients were taken back to the OR due to hematoma (n=2), venous congestion (n=1) and ischemia with loss of the flap (n=1). Mean hospital stay was 5 ± 1 days. Median time to complete healing was 25.5 days (IQR 23.5). Within a median follow-up time of 102 days (IQR 114) none of the patients had recurrence of acne inversa or functional deficits in the shoulder. Mean Vancouver Scar Scale score was 6 ± 3 and protective sensibility was achieved in 13 flaps. Secondary corrections with flap thinning were performed in 2 patients (3 flaps). Mean cumulative in-patient stay was 6.5 ± 2.4 days with a mean total operation time of 237 ± 68 minutes.

Conclusion

The posterior arm flap provides simultaneous bilateral reconstruction of large axillary defects with functional soft tissue replacement, sensate restoration and acceptable scars.

FC

Free periosteal-only flap from medial femoral condyle for metacarpal reconstruction

Swenn Maxence Krähenbühl¹, Thierry Christen¹, Camillo Theo Müller², Pietro Giovanni di Summa¹, Sébastien Durand¹

¹ Department of Plastic, Reconstructive and Hand Surgery, Lausanne University Hospital (CHUV), Lausanne, Switzerland;

² Department of Plastic, Reconstructive and Hand Surgery, BG Unfallklinik, Ludwigshafen, Germany

Introduction

Metacarpal nonunion is a rare condition, generally treated with resection of the nonunion, cancellous graft and internal fixation. Open fracture, extensive intraoperative periosteum removal or osteomyelitis are situations that can deeply impair bone vascularization. In such cases, fusion is compromised and revision rate of a traditional approach is high. The osteogenic capacity of free periosteal-only flap from the medial femoral condyle was investigated in five patients with metacarpal nonunion.

Material and methods

Five patients presented with non union of one metacarpal. Two cases were open high energy trauma (gunshot and dynamite blast) leading to nonunion after fixation. Two cases developed nonunion due to intraoperative extensive periosteum removal and inadequate fixation. One case was an open trauma leading to nonunion after fixation. Periosteal-only medial femoral condyle free flap, supplied by the descending genicular artery, was harvested according the size determined by the defect, transferred to the hand and wrapped around the metacarpal after bone fixation. Anastomosis was performed to the dorsal branch of the radial artery and to a superficial vein.

Results

Doppler ultrasonography showed adequate flap perfusion after surgery. Radiological bone union was observed two to six months after surgery in every cases. No complication was recorded at the harvest site. One infection of the osteosynthesis material was observed but treated efficiently with 12 w antibiotics.

Conclusion

In case of nonunion, when metacarpal bone vascularization is impaired, vascularized periosteal flap provides an effective and biomimetic approach for bone healing.

P 18**Outcomes of negative pressure garments on split-thickness skin graft take**

Lanz Loyse¹, Roesti Aurore¹, Raffoul Wassim¹, di Summa Pietro¹

¹ Department of Plastic and Hand Surgery Centre Hospitalier Universitaire Vaudois (CHUV)
Rue du Bugnon 46 1011 Lausanne

Introduction

Split thickness skin graft (STSG) are generally fixed with tie-over Bolster dressing or compressive garments. The use of a negative pressure dressings (VACTM) can be used to improve graft adherence. This retrospective study aims to compare VAC dressing vs traditional compressive dressing in terms of graft take and mobilization time in patients with lower limb ulcers

Materials and Methods

Two hundred thirty-two patients who underwent skin graft surgery between 2015 and 2018 at the plastic and reconstructive surgery department of Lausanne university hospital. Only lower limb arterial, venous or mixed ulcers were considered for the study, excluding grafts after neoplasia, infection and burns. Data were collected in discharge letters, consultation follow-ups and operating protocols.

Results

Preliminary data shows how negative pressure garments by VACTM can improve significantly (p

P 1

A complicated pretibial soft tissue lesion: a scalpel encounters resistance

Leuenberger N^{Klinik für Orthopädie, Hand- und Unfallchirurgie, Stadtspital Waid und Triemli, Zürich}, **Sproedt J**^{Klinik für Orthopädie, Hand- und Unfallchirurgie, Stadtspital Waid und Triemli, Zürich}, **Dietrich M**^{Klinik für Orthopädie, Hand- und Unfallchirurgie, Stadtspital Waid und Triemli, Zürich}, **Schwarz A**^{Institut für Nephrologie im Stadtspital Waid und Triemli, Zürich}

¹ *Klinik für Orthopädie, Hand- und Unfallchirurgie, Stadtspital Waid und Triemli, Zürich;*

² *Institut für Nephrologie im Stadtspital Waid und Triemli, Zürich*

Introduction

Pretibial soft tissue lesions are often observed in elderly patients. Due to the thin soft tissue layer and often polymorbidity of those patients the surgical therapy and the following wound healing phase can be quite challenging and need an interdisciplinary approach. A special case report of a pretibial wound combined with severe soft tissue calcification will demonstrate the complexity of the treatment and its perioperative workup.

Material and Methods

The surgical treatment contained wound debridement reaching bone level, which was complicated by the soft tissue calcification, vacuum assisted closure therapy, Beck's drilling and finally split-skin grafting with MATRIDERM®. Angiological intervention to optimize the vascular situation were made parallel. Simultaneously the counsel of the angiologists, dermatologists and nephrologists were requested. Further X-Ray, CT-Scans, Sonography, Biopsy, Bacteriology and blood tests were used for diagnostics.

Results

Despite of soft tissue calcification, peripheral arterial disease and polymorbid patient, a successful wound healing was achieved. Calciphylaxis, dystrophic calcification, calcinosis metastatica, idiopathic and iatrogenic calcification as well as ulcer hypertonicum Martorell were our differential diagnoses. A definite aetiology for the soft tissue calcification could not be found. We assume, regarding all our examinations a dystrophic calcification due to chronic venous insufficiency with stasis dermatitis.

Conclusion

Pretibial soft tissue lesions, especially with soft tissue calcification, are a challenge for surgical treatment. Nevertheless, a successful wound healing can be achieved even in elderly patients.

P 16**Intralesional cryotherapy for treatment of keloids: a consecutive case series***Macek Aljosa¹, Har-Shai Yaron², Bayard Ivo¹, Constantinescu Mihai Adrian¹, Olariu Radu¹**¹ Universitätsklinik für Plastische- und Handchirurgie, Inselspital Bern;**² Department of Plastic Surgery, Carmel Medical Center, Haifa, Israel*

The therapy of keloids remains a challenge due to therapy resistance and high recurrence rates. Contact and spray cryotherapy have long been used for treatment of keloids but have not proven efficient. Recently, a novel technique has been developed, in which cryotherapy is performed intralesionally, using a specially designed needle (CryoShape®) allowing liquid nitrogen flow inside. Thus, the whole volume of the scar is treated instead of only the superficial part of it. This technique promises better outcomes with fewer treatment sessions.

All patients treated with intralesional cryotherapy between May 2018 and November 2019 were included in our study. The procedure was performed using the CryoShape® needle and the first treatments were performed by or under the guidance of the developer of the technique, Prof. Y. Har-Shai, Haifa, Israel. Pre- and post-treatment scar appearance were assessed with the Patient and Observer Scar Assessment Scale (P/OSAS).

A total of 13 keloid scars were treated using intralesional cryotherapy. The mean number of treatments was 1.3. There were no complications. The overall POSAS score increased from 44.75+/-2.87 to 18.00+/-6.98 in the patient assessment and from 29.75+/-5.62 to 16.25+/-3.77 in the observer assessment (p

FC

Hypoxically preconditioned adipose-derived stem/progenitor cells (ASPCs) embedded in fibrin conduits promote peripheral nerve regeneration in a sciatic nerve graft model in rats

Mayer J.^{1,2}, Krug C.¹, Saller M.², Feuchtinger A.³, Giunta R.⁴, Volkmer E.⁵, Holzbach T.¹

¹ Department of Hand- and Plastic Surgery, Spital Thurgau AG, 8501 Frauenfeld, Switzerland;

² Experimental Surgery and Regenerative Medicine (ExperiMed), Department of General, Trauma and Reconstructive Surgery, Ludwig-Maximilians-University (LMU), Nußbaumstraße 20, 80336 Munich, Germany;

³ Research Unit Analytical Pathology, Munich, Helmholtz Zentrum München – German Research Center for Environmental Health (GmbH), Ingolstädter Landstraße 1, Neuherberg 85764, Germany;

⁴ Division of Hand-, Plastic- and Aesthetic Surgery, Ludwig-Maximilians-University (LMU), Pettenkoferstraße 8, 80336 Munich, Germany;

⁵ Department of Hand Surgery, Helios Klinikum München West, Steinerweg 5, 81241 Munich, Germany

Background

Recent results emphasize the supportive effects of ASPCs in peripheral nerve recovery. This study aimed to examine, whether peripheral nerve regeneration in a sciatic nerve graft model benefits from an additional fibrin conduit, which is loaded with hypoxically preconditioned ASPCs.

Methods

ASPCs were isolated from rats' inguinal fat pads (n=36). Before implantation, ASPCs were embedded in a custom-made fibrin conduit, which was placed around an autologous nerve graft in a sciatic nerve interruption model. Four groups were compared: rats either receiving a fibrin conduit loaded with hypoxically pretreated ASPCs (n=9), loaded with normoxically cultivated ASPCs (n=9), a non-cell carrying conduit (n=9) or a sole autograft (n=9). A 16-weeks follow up with functional tests (SFI and SSI) was conducted before post mortem muscle mass analyses and morphometric nerve evaluation were carried out.

Results

Eight weeks after surgery, rats with hypoxically pretreated cells reached significantly higher SFI/SSI scores when compared to all other groups ($p < 0.05$). 16 weeks after treatment, this tendency was still observed; however, the differences were not statistically significant ($p > 0.05$). Rats that were treated with hypoxically pretreated ASPCs showed the least muscle atrophy ($p > 0.05$). Treating nerve defects with cell loaded conduits significantly increased axon out-growth/branching as well as axon diameter and remyelination.

Conclusion

Hypoxically preconditioned ASPCs in fibrin conduits is a promising adjunct to nerve autografting technique to improve peripheral nerve regeneration. Further studies are needed to ensure a transfer to clinical practice.

FC**Prevention of burns in the elderly : an unknown but necessary theme**

Meuwly Marie-Garance^{Université de Lausanne}, Prof. Raffoul Wassim^{Service de Chirurgie Plastique et Reconstructive, CHUV}

¹ Service de Chirurgie Plastique et Reconstructive, CHUV

Introduction

Every year, numerous elderly suffer from burns in Switzerland. These injuries particularly have severe consequences for that population. Indeed, a large proportion of seniors die and for those who survive, burns induce a large loss in terms of autonomy and quality of life. Those accidents occur following mechanisms that are specific to the elderly. While a targeted prevention could avoid those burns, why doesn't it already exist ?

Materials and Methods

A literature review regarding the prevention tools for the elderly has been achieved. 85 articles have been analyzed. Semi-structured interviews with 40 speakers implicated in this subject have been conducted. A database gathering patients ≥ 65 years old that came in the Centre des Brûlés-CHUV between 2014 and 2018 has been established.

Results

Per year, about a dozen elderly burn themselves severely in the french-speaking Switzerland. 35,9% of these accidents are fatals. 66,6% take place inside home. Dementia, reduced mobility or isolation are examples of burns' triggers within this population. The implication of ergotherapists from CMS, the development of campaigns to raise awareness and the making of legislations about hot water and fire alarms to prevent scalds and flame burns are solutions to be explored. Redefining the roles of each actor will also be a necessary step.

Conclusion

Burns in the elderly are an ignored theme, nevertheless a key one. The development of an effective targeted prevention is definitely essential to prevent these serious accidents in the seniors in order to reduce mortality and morbidity. And of course, the quicker, the better.

FC

Prolonged antibiotic prophylaxis in autologous fat grafting of the breast: is there a benefit?

Morandi Evi¹, Verstappen Ralph², Rieger Ulrich³, Bauer Benedikt²

¹ Department of Plastic, Reconstructive and Aesthetic Surgery, Innsbruck Medical University, Innsbruck, Austria;

² Department of Hand, Plastic and Reconstructive and Hand Surgery, Kantonsspital St. Gallen, St. Gallen, Switzerland; ³ Department of Plastic and Aesthetic, Reconstructive and Hand Surgery, Agaplesion Markus Hospital, Johann Wolfgang von Goethe University, Frankfurt am Main, Germany

Introduction

Fat grafting of the breast is a well-established method in plastic surgery. Despite many technical advances, standardized recommendations for the use of prophylactic antibiotics in fat grafting are still not available. The aim of this study was to analyze the use of prophylactic antibiotics in fat grafting of the breast and to compare complication rates for different schemes in order to minimize the unnecessary use of antibiotic agents.

Methods

A retrospective medical chart review of patients treated with fat grafting of the breast from January 2007 to March 2019 was performed in three centers. Complications, outcome and antibiotic regimes were analyzed. The Clavien Dindo classification was applied.

Results

The overall complication rate for lipofilling of the breast was 21.6% (75 of 340 patients), which included graft resorption, fat necrosis, infection and wound healing disturbance. All patients received perioperative antibiotic prophylaxis: 33.8% (n=115) were treated with a single shot, 66.2% (n=225) received a prolonged antibiotic scheme. There was no significant difference in the number of sessions between the groups ($p=0.475$). Also, complication rates were not significantly different. A correlation is seen between an increased complication rate and individual patient risk factors.

Conclusions

The complication rate for lipografting of the breast is low, and is not correlated to the antibiotic scheme. Risk factors for elevated complication rates in this specific patient group are smoking, chemotherapy and irradiation therapy. The use of prophylactic antibiotics other than a single shot does not improve the complication rate.

P 5**Orthoplastic treatment outcome after fracture related infection with concomitant soft-tissue defect**

Müller SLC^{1,2}, Osinga R^{1,2}, Morgenstern M^{1,3}, Kühl R^{1,4}, Sendi P^{1,3,4,5}, Clauss M^{1,3,6}, Schaefer DJ^{1,2}

¹ Centre for Musculoskeletal Infections, University Hospital Basel, Basel, Switzerland;

² Department of Plastic, Reconstructive, Aesthetic and Hand Surgery, University Hospital Basel, Basel, Switzerland; ³ Department of Orthopaedic and Trauma Surgery, University Hospital Basel, Basel, Switzerland;

⁴ Infectious Diseases and Hospital Epidemiology, University Hospital Basel, Basel, Switzerland;

⁵ Institute for Infectious Diseases, University of Bern, Bern, Switzerland;

⁶ Clinic for Orthopedics and Trauma Surgery and Interdisciplinary Septic Surgical Unit, Kantonsspital Baselland, Liestal, Switzerland

Introduction

Fracture-related infection (FRI) is one of the most challenging complications in orthopaedic trauma surgery. If combined with a soft-tissue defect, a multidisciplinary strategy – including a thoroughly planned orthoplastic approach - is imperative. We present a single-centre outcome analysis over 8 years.

Methods

A prospectively maintained database of patients with FRI and soft-tissue reconstruction treated from 2010 until 2018 was retrospectively reviewed. Plastic surgical, orthopaedic and infectiological outcome was assessed at a minimum follow-up of 9 months.

Results

330 patients had FRI, 58 needed soft-tissue reconstruction (24 free, 27 pedicled and 7 local flaps) and 42 patients completed follow-up. In 6 patients the flap failed, in 11 patients infection recurred (chi squared-test exhibited a significant higher likelihood of persistence/recurrence of FRI if more than two debridements were performed) and in 8 patients the fracture did not heal resulting in 3 amputations. Overall, 3 patients had both recurrent infection and non consolidation of the fracture, resulting in an overall complication rate of 50% (21/42).

Conclusion

FRI with soft-tissue defect is a very challenging entity with complex patients and a high rate of treatment failure. This underlines the importance of referring these patients early to a specialized multidisciplinary bone and joint infection unit. Standardization of surgical techniques for a defined FRI problem and consensus on study variables may facilitate interinstitutional comparisons of outcome data, and hence, improvement of treatment concepts.

P 12

Multiple-step reconstruction of a complex centrofacial malformation with proboscis lateralis: from infancy to adulthood

Nichols L *Service de chirurgie plastique, reconstructive et esthétique, Département de chirurgie, Hôpitaux Universitaires de Genève*, **Rüegg E** *Service de chirurgie plastique, reconstructive et esthétique, Département de chirurgie, Hôpitaux Universitaires de Genève*, **Landis B** *Service d'ORL/ Chirurgie cervico-faciale, Département des neurosciences clinique, Hôpitaux Universitaires de Genève*, **Scolozzi P** *Service de chirurgie maxillo-faciale et chirurgie orale, Département de chirurgie, Hôpitaux Universitaires de Genève*, **Piitet-Cuénod B** *Service de chirurgie plastique, reconstructive et esthétique, Département de chirurgie, Hôpitaux Universitaires de Genève*

¹ *Service de chirurgie plastique, reconstructive et esthétique;*

² *Département de chirurgie;*

³ *Hôpitaux Universitaires de Genève*

Proboscis lateralis is a rare congenital nasal malformation consisting of a rudimentary tubular appendage, often associated with underlying craniofacial deformities. These complex malformations represent a reconstructive challenge in their uniqueness and unpredictable evolution with facial growth.

Through this case-report we aimed to illustrate the multiple reconstructive stages from infancy to adulthood of a patient with a complex left facial malformation including proboscis lateralis, heminasal aplasia and incomplete facial cleft with lower eyelid coloboma, labial and alveolar clefts.

Early soft tissue repair was achieved using the proboscis for hemi-nasal reconstruction. In late childhood, alveolar bony cleft was closed. With growth, the patient developed severe midface hypoplasia and nasal obstruction with a large based, low projected nose. Because of potential impact of midface correction on nasal features, achieving a satisfactory maxillary projection first was paramount. Then open rhinoplasty was performed with septal perforation, columellar enhancement using septal cartilage and inferior turbinoplasty for nasal airflow improvement. We then observed septal fistula closure and insufficient nasal projection, requiring subsequent rhinoplasty with costal grafting.

Thorough planning and multi-disciplinary approach allowed for good functional and cosmetic outcomes. With limitless variability, the treatment of complex facial malformations needs to be personalized but must follow a well-defined reconstructive plan where every step addresses a specific structure, taking into account its growth, specifics of the deformity and consequences of surgery on adjacent structures.

FC

The new kid on the block: the SCIP flap is the ideal first choice in head and neck reconstruction

Olariu R¹, Zubler C², Grobbelaar AO¹, Giger R³, Constantinescu MA¹

¹ Department of Plastic and Hand Surgery, Inselspital University Hospital Bern, Bern, Switzerland;

² Institute of Anatomy, University of Bern, Bern, Switzerland;

³ Department of Oto-Rhino-Laryngology, Head and Neck Surgery, Inselspital University Hospital Bern, Bern, Switzerland

Introduction

A thin skin flap is often desirable in order to achieve a satisfactory result in Head and Neck reconstruction. Superficial circumflex iliac artery perforator (SCIP) flaps can provide just that ideal tissue but have yet to gain large acceptance in Europe. We aimed to assess the anatomical and clinical reliability of the SCIP flap for head and neck reconstruction.

Material and Methods

We performed an anatomical study on 21 cadavers and carefully dissected both deep and superficial branches of the superficial circumflex iliac artery and which we selectively injected with mAngiofil. Flaps were raised in both deep and superficial planes and assessed by angio-CT and microangio-CT.

We subsequently applied the anatomical knowledge in a consecutive series of 19 cases for Head and Neck Reconstruction.

Results

A total of 21 anatomical specimen were harvested and analyzed. The deep branch based SCIP flap has a longer pedicle (9.1 cm vs 6.6 cm, p

FC

Complications of non-permanent facial fillers: a comprehensive literature review

Oranges C.M.¹, Brucato D.², Schaefer D.J.¹, Harder Y.²

¹ Department of Plastic, Reconstructive, Aesthetic, and Hand Surgery, Basel University Hospital, University of Basel, Basel, Switzerland;

² Department of Plastic, Reconstructive and Aesthetic Surgery, Ospedale Regionale di Lugano, Ente Ospedaliero Cantonale (EOC), Switzerland

Introduction

Many different complications on non-permanent fillers for facial rejuvenation have been reported over the last decades. However, to date the overall complication rate is unknown. The study aim was to perform a comprehensive review of the literature to assess the complications associated to injections in different anatomical regions of the face.

Material and methods

The entire PubMed/Medline database was screened to identify case reports and clinical studies describing complications occurred after injection of non-permanent fillers in the face. Complications that occurred in the different anatomical regions of the face were reviewed and analysed.

Results

46 articles on 164 patients reporting 436 total complications were published between 2003 and 2019. The majority of the complications were reported after injections to the nose (n=230), to the forehead and brows (n=53) glabella (n=36). We identified 163 severe or permanent complications including skin necrosis (n= 46), loss of vision (n= 35) or encephalitis (n=1), while 273 complications were classified as mild or transient and included local oedema (n=74), skin erythema (n=69) and filler dislocation (n=2). The most severe complications were observed in treatments of the nose, the glabella and the forehead area.

Conclusion

Non-permanent facial fillers are associated with rare but potentially severe complications. The impact of the complications depends on anatomical regions of the face and therefore require profound knowledge of facial anatomy anatomical. We summarize potential strategies to minimize the risk of complications

FC

Surgical correction of massive gynecomastia using power-assisted liposuction and direct gland resection

Oranges C.M.¹, Pfeifer A.¹, Keith Jordans², Schaefer D.J.¹, Kalbermatten D.F.¹

¹ Department of Plastic, Reconstructive, Aesthetic, and Hand Surgery, University Hospital Basel, University of Basel, Basel, Switzerland;

² Department of Plastic Surgery, WellStar Windy Hill Hospital, Smyrna, GA, USA.;

³

Introduction

The surgical treatments of mild to moderate gynecomastia has evolved towards less invasive techniques, such as power-assisted liposuction, suction-assisted lipectomy or ultrasound-assisted liposuction. Excisional techniques are still indicated for the most severe cases characterized by skin excess and ptosis. The aim of this study was to present a method of using power-assisted liposuction combined with gland resection to treat gynecomastia with severe hypertrophy.

Material and Methods

We conducted a chart review of 10 consecutive patients treated for massive gynecomastia between 2014 and 2018. Power-assisted liposuction was performed to remove the fatty breast tissue. Incisions for liposuction were placed at lateral inframammary fold and upper anterior axillary pillar. An inferior hemiperiareolar incision was then performed to allow direct resection of fibroglandular breast tissue. A final liposuction in all directions was performed again to recontour the breast. No skin was resected and drains were always inserted in each breast. Compression vest was worn for 6 weeks after surgery.

Results

In average, 500 mg of fat and fibroglandular tissue were removed from each breast. No complications were reported. At 1 year follow-up, ideal aesthetic results, with minimal scars, adequate virilization of the chest contour and full satisfaction of surgeon and patient were observed in 8 patients, while 2 patients presented residual skin excess.

Conclusion

The combination of power-assisted liposuction and direct glandular resection is an adequate approach in case of massive gynecomastia, while skin excisional procedures can be reserved to delayed secondary corrections.

P 6

Orthoplastics in periprosthetic joint infection of the knee: treatment concept for composite soft-tissue defect with extensor apparatus deficiency

Osinga R^{1,2,3}, Eggimann MM¹, Lo SJ^{3,4}, Kühl R⁵, Lungler A², Ochsner PE⁶, Sendi P^{1,5,7,8}, Claus M^{1,6,8}, Schaefer DJ^{1,2}

¹ Centre for Musculoskeletal Infections, University Hospital Basel, Basel, Switzerland;

² Department of Plastic, Reconstructive, Aesthetic and Hand Surgery, University Hospital Basel, Basel, Switzerland;

³ Canniesburn Plastic Surgery Unit, Glasgow Royal Infirmary, 84 Castle Street, Glasgow, G4 0SF, United Kingdom;

⁴ Translational Research Center, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan;

⁵ Infectious Diseases and Hospital Epidemiology, University Hospital Basel, Basel, Switzerland;

⁶ Clinic for Orthopedics and Trauma Surgery and Interdisciplinary Septic Surgical Unit, Kantonsspital Baselland, Liestal, Switzerland;

⁷ Institute for Infectious Diseases, University of Bern, Bern, Switzerland;

⁸ Department of Orthopaedic and Trauma Surgery, University Hospital Basel, Basel, Switzerland

Introduction

Reconstruction of composite soft-tissue defects with extensor apparatus deficiency in patients with periprosthetic joint infection (PJI) of the knee is challenging. We present a single-centre multidisciplinary orthoplastic treatment concept based on a retrospective outcome analysis over 20 years.

Methods

A prospectively maintained database of patients treated from 1999 until 2020 was retrospectively searched for patients with PJI after total knee arthroplasty (TKA) and concomitant soft-tissue defects with extensor apparatus deficiency.

Results

160 patients had PJI after total knee arthroplasty. Plastic surgical reconstruction of a concomitant perigenicular soft-tissue defect was indicated in 47 patients. Of these, 6 presented with extensor apparatus deficiency. 5 patients underwent 'like with like' reconstruction: Two patients with a wide soft-tissue defect received a free anterolateral thigh flap with fascia lata; one patient with a smaller soft-tissue defect a free sensate, extended lateral arm flap with triceps tendon; and two patients who did not qualify for free flap surgery a pedicled medial sural artery perforator gastrocnemius flap. Despite good functional results 1 year later, long-term follow-up revealed that 2 patients had to undergo arthrodesis because of recurrent infection and 1 patient was lost to follow-up.

Conclusion

These results show that PJI of the knee and extensor apparatus deficiency is a dreaded combination with a poor long-term outcome. Standardization of surgical techniques for a defined PJI problem and consensus on study variables may facilitate interinstitutional comparisons of outcome data, and hence, improvement of treatment concepts.

FC

Liposuction in patients with lipedema : a retrospective chart review

Papanikolaou Athanasios¹, Stengle Marita¹, Fischlin Claudia¹, Olariu Radu¹, Constantinescu Mihaï¹

¹ Department of Plastic and Hand Surgery, Inselspital University Hospital Bern, Switzerland

Introduction

Lipedema is characterized by swelling, pain and bruising of the limbs and increase as well as nodular deformity of subcutaneous fat tissue. It typically affects women under hormonal changes such as during puberty, pregnancy or menopause and a familial predisposition is common. Mislabeling of clinical picture may delay treatment, since lipedema may coexist with adiposity or lymphedema. Treatment options are conservative (compression/lymphatic drainage) and surgical (liposuction). Liposuction in patients with lipedema can provide a reduction in pathologic fat tissue.

Material and Methods

We retrospectively assessed the surgical outcomes of female patients with lipedema that were treated in our unit, from 2013 to 2019. The data were extracted from the electronic archive of our hospital. In this interval 59 patients were referred to us with suspected lipedema. Patients that did not meet diagnostic criteria for lipedema and those who were not operated on were excluded. 13 patients were treated using liposuction and underwent follow-up evaluation after intervals from 4 to 25 months.

Results

A significant improvement in pain and/or tenderness was reported in 10 patients, in cosmetic result and edema in 9 patients and 2 reported no improvement in their symptoms at all. Two patients were operated twice and reported further improvements in pain reduction after the second procedure.

Conclusion

Liposuction shows a clear improvement in the leading symptoms of pain, tenderness and cosmetic impairment in patients with lipedema. Long-term follow-up and comparison with conservative treatment outcomes are planned.

FC

Surgical management, amputation rate and reconstructive options in electrical injuries to upper extremities

Pedrazzi N.¹, Schweizer R.¹, Klein H. J.¹, Gentsch T.¹, Kim B.-S.¹, Giovanoli P.¹, Plock J.A.¹

¹ Department of Plastic Surgery and Handsurgery, Burn Center, University Hospital Zurich, Switzerland

Introduction

Electrical injuries are frequently mutilating injuries with high morbidity. Here we assessed surgical management and reconstructive options for upper extremities in our electrical injury cohort.

Methods

Patients with electrical injury between 2005 and 2019 were identified, charts were reviewed retrospectively. Epidemiological data, surgical management, reconstruction and outcome were analyzed, and risk factors for amputation investigated.

Results

We identified 89 patients, predominantly males (87%) between 21 and 40 years (51%) with high-voltage (74%) injuries. Low-voltage patients had a median of 2 (IQR 1.5) procedures, compared to 4 (IQR 8.8) in high-voltage. Rhabdomyolysis, compartment syndrome and high blood myoglobin and creatinine kinase at admission were predictive for amputation (p

P 10**Why must a plastic surgeon know about Martorell's ulcer and calciphylaxis to avoid medical problems**

Peter L¹, Moron M¹, Meuli-Simmen C¹, Eyer D¹

¹ Clinic of Plastic -, Reconstructive - and Hand Surgery, Kantonsspital Aarau, Aarau, Switzerland

Introduction

Ischaemic ulcers of the lower extremity can have several aethiologies and can be a diagnostic challenge. The successful therapy of these chronic leg ulcers are based in an adequate diagnosis and a multidisciplinary management.

Method and Results

The authors present one case of Martorell's hypertensive ulcer and one case of calciphylaxis ulcer with emphasis on the differential diagnose and treatment.

Conclusion

These two cases show that is not always easy to manage a chronic wound ulcers of the lower extremities despite use of a good wound therapy and we must remember the existence of these two diseases.

FC

Geographic distribution of plastic surgeons across Switzerland

Petrus M.¹, Holzbach T.¹, Krug C.¹, Leitsch S.¹

¹ Clinic for Hand- and Plastic Surgery, Cantonal Hospital Thurgau - Frauenfeld / Münsterlingen, Switzerland;

²

Introduction

Over the last ten years there has been a significant increase in the number of registered plastic surgeons in Switzerland. The purpose of this study is to evaluate the geographic distribution of plastic surgeons in Switzerland.

Methods

We identified the number of surgeons within each of the 26 Cantons, assessed any distribution and identified factors influencing practice location. Plastic surgeon practice location data was obtained from the Swiss Medical Association - FMH Register (2018) and cantonal population data was obtained from the Federal Statistical Office (2018). The density of plastic surgeons was calculated as a ratio per 100,000 people. Identified plastic surgeons were asked to complete a survey providing their opinion on the significance of six given factors influencing practice location.

Results

As of 2018, there were 280 FMH plastic surgeons in Switzerland at a time when the permanent resident population was 8,544,527; resulting in a national ratio of 3.27 plastic surgeons per 100,000. The distribution of plastic surgeons was weighted to Cantons with a higher percentage of residents who are inter alia younger than 65 years, female and residing in urban areas.

Conclusion

Our study indicates that the locations of plastic surgeons positively correlate with population demographics, most notably urban density.

FC

Modulation of human adipose stem cells' neurotrophic potency using a variety of growth factors for neural tissue engineering applications: analysis of axonal growth, RNA transcription and phosphor-proteomics

Prautsch KM^{1,2,3}, Schmidt A4, Paradiso V², Degrugillier L^{1,2,3}, Schaefer DJ^{1,5}, Guzman R^{5,6}, Madduri S^{1,2,3,5}, Kalbermatten DF^{1,2,3}

¹ Department of Plastic, Reconstructive, Aesthetic and Hand Surgery, University Hospital Basel, Switzerland;

² Department of Pathology, University Hospital Basel, Switzerland;

³ Department of Biomedical Engineering, University of Basel, Switzerland;

⁴ Biozentrum, University Hospital Basel, Switzerland;

⁵ Department of Biomedicine, University Hospital Basel, Switzerland;

⁶ Department of Neurosurgery, University Hospital Basel, Switzerland;

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Introduction

Human adipose derived stem cells (ASC) are a potential source for neural tissue engineering applications. We report on a strategy involving exogenous neurotrophic factors (NTF) for enhancing the neuro-regenerative potency of ASC.

Methods

ASC were stimulated using the following individual NTF, i.e., NGF, BDNF, NT3, NT4, GDNF or CNTF. Resulting conditioned medium (CM) as well as individual NTF were evaluated in an in vitro axonal outgrowth assay on chicken dorsal root ganglions (DRG). Underlying molecular changes for stimulated ASC and for treated DRG-explant cultures were examined using transcriptional and phospho-proteomic analysis.

Results

DRG-explant cultures revealed distinct effects of the growth factors on the axonal outgrowth, and CM derived from NTF-stimulated ASC resulted in enhanced axonal regeneration. Particularly, CM derived from NT3-stimulated ASC (CM-NT3-ASC) promoted robust axonal outgrowth. Transcriptional analysis of DRG cultures in response to CM-NT3-ASC displayed significant up-regulation of the regeneration associated genes STAT-3 and GAP-43. Phospho-proteomic analysis of NT3-stimulated ASC revealed significant phosphorylation changes of proteins involved in the growth factors' release, and in the stem cell population maintenance and differentiation. DRG-cultures treated with CM-NT3-ASC showed significant phosphorylation changes in proteins involved in cytoskeletal pathways for axonal projections.

Conclusion

The results obtained at a transcriptional, proteomic and cellular level suggest an enhanced neurotrophic potency of ASC following NT3-stimulation and provide new options for improving the therapeutic efficacy of ASC.

P 17

Development of an ex vivo human skin burn model using pulsed dye LASER

Raszka Ania^{Service de Chirurgie Plastique et Reconstructive – CHUV}, Burri-Hirt Nathalie^{Dpt. de l'Appareil Locomoteur, Unité de}

Thérapie Régénérative – CHUV, Pythoud Catherine^{Dpt. de l'Appareil Locomoteur, Unité de Thérapie Régénérative – CHUV}, Haselbach

Daniel^{Service de Chirurgie Plastique et Reconstructive – CHUV}, Wassim Raffou^{Service de Chirurgie Plastique et Reconstructive – CHUV},

Lee Ann Laurent-Applegate^{Dpt. de l'Appareil Locomoteur, Unité de Thérapie Régénérative – CHUV}, Oumama El Ezzi^{Service de}

Chirurgie de l'Enfant et de l'Adolescent - CHUV, Anthony de Buys Roessingh^{Service de Chirurgie de l'Enfant et de l'Adolescent - CHUV}

¹ Service de Chirurgie Plastique et Reconstructive – CHUV;

² Dpt. de l'Appareil Locomoteur, Unité de Thérapie Régénérative – CHUV;

³ Service de Chirurgie de l'Enfant et de l'Adolescent - CHUV

Introduction

Early diagnosis of superficial and deep 2nd degree burns is a key point in the management and choice of treatment for burn victims. Superficial 2nd degree burns require a conservative treatment and heal spontaneously, while deep 2nd degree burns require surgical treatment, as healing is difficult. Because of the difficulty in differentiating these two grades of burns, treatments are delayed, which increases the risk of aesthetic and functional sequelae. A Functional burn model would be important for performing multiple experiments on known degrees of burns. We propose, the creation of an ex vivo burn model on viable human skin explants.

Methods

Excess abdominal skin was obtained from the Department of Musculoskeletal Medicine bio-bank from six white women following an elective breast reconstruction operation (DIEP). Within one hour after surgery, burns were induced using a pulsed dye laser on skin samples. We have tested different parameters. In total, 53 burns were performed before being treated for histological and dermatopathological analysis.

Results

We have determined the precise parameters of wavelength(595nm), fluence(13 J/cm²) and laser beam diameter(7mm) to induce 2nd degree burns. 15 pulses were necessary to induce a 2nd degree superficial burn and 30 pulses for deep burns.

Conclusion

The results show that the ex vivo burn model on human skin is a precise and reproducible model of superficial and deep 2nd degree burns, close to the clinical reality. With a view to improving therapeutic strategies, this model could be used to support the testing of new treatments on known degrees of burn injuries without animal experimentation.

FC

Lightweight Breast Implant (LWBI): retrospective examination of 120 patients over a period of 45 months and first results from an international multicentre prospective study

Reichenberger M.A., Germann G., Engel H., Ernst J.

¹ ETHIANUM Heidelberg – Klinik für Plastische, Rekonstruktive und Ästhetische Chirurgie, Partnerklinik der Universität Heidelberg

Introduction

Breast augmentation with silicone implants is one of the most common aesthetic procedures worldwide. Lightweight Breast Implants combine well known and clinically proven materials in an innovative way to reduce implants weight compared with traditional breast implants of similar volume. Due to the completely redesigned filling material, a weight reduction of approx. 28 percent is achieved. We present our results as a subgroup of an international multi-centric prospective study, as well as our experience with the use of these implants in breast surgery.

Method

Over a period of 45 months, 120 patients were treated with the B-Lite implants in our clinic, including 89 patients with primary augmentation without any additional procedures. Demographic data, complication frequency, type of implant, implant volume, postoperative pain intensity and patient satisfaction were recorded using standardized questionnaires.

Results

The indication for breast surgery in the study group was hypoplasia (100%). The average implant volume was 295 cc. Both round and anatomical implants were used. The operating times did not differ from those when using other standard implants. Complications of the study group: postoperative bleeding (0.8%) pain longer than 2 weeks (1.6%), seroma (1.6%) and reversible implant rotation (0.8%) complications normal group: infections (3.3%) and double Bubble (3.3%). The patient satisfaction rate was 100%.

Conclusion

Overall, our results suggest that LWBI are associated with very low rates of complication and reoperation, and seems to improve patient satisfaction and the long-term outcomes of the world's most popular aesthetic surgical procedure.

P 15

Validation of a novel, simple and inexpensive scanning process for the three-dimensional assessment of the gluteal region

Ricklin A.¹, Oranges C.M.¹, Benitez B.², Sharma N.², Kalbermatten D.F.¹, Schaefer D.J.¹, Thieringer F.M.²

¹ Department of Plastic, Reconstructive, Aesthetic, and Hand Surgery, Basel University Hospital, University of Basel, Basel, Switzerland;

² Department of Oral and Cranio-Maxillofacial Surgery, Basel University Hospital, Basel, Switzerland.

Introduction

Three-dimensional photography is increasingly used to assess surgical changes of volume, tissue distribution and projection. Our group has recently validated an innovative, simple and inexpensive three-dimensional scanning process for three-dimensional assessment of the breast. The aim of this study was to validate its use also for the gluteal region.

Material and Methods

The three-dimensional scanning process was performed using the newly introduced Structure Sensor 3D scanner (Occipital, Inc., Boulder, Colo.) connected to an iPad Pro (Apple, Inc., Cupertino, Calif.). A medical human female anatomy torso model of rigid plastic was employed to repeatedly capture surface images. Digital measurements of vector and surface gluteal distances were calculated using Mimics® Innovation Suite 20 medical imaging software (Materialise, Leuven, Belgium) and compared with those obtained using Computer Tomography (CT) scan and Vectra M5 Scanner (Canfield Scientific Inc., Parsippany, NJ, USA), two clinically established scanning processes. Analysis of variance (ANOVA) was performed to identify possible statistical significant differences among the methods.

Results

For all variables examined, there was no significant difference among measurements obtained using different scanning processes ($p > 0.05$).

Conclusion

Our study was able to validate the use of Structure Sensor for three-dimensional gluteal photography in comparison to other clinically established scanners, demonstrating analogous practicability and reliability. This novel three-dimensional technology will allow objective and simple evaluation of gluteal volume and morphology changes.

FC**Pediced composite ALT in postoncological abdominoperineal resection: a 20 year retrospective cohort study**

Rossi SA¹, Guillier D², Raffoul W¹, di Summa PG¹

¹ Service de chirurgie plastique et de la main, CHUV, Lausanne;

² Service de chirurgie plastique réparatrice et esthétique, CHU Dijon Bourgogne, Dijon

Introduction

Perineal reconstruction after abdominoperineal resection (APR) often requires soft tissue coverage with bulky, well vascularized tissue. Flap surgery offers stable coverage in oftentimes polymorbid patients. The vertical rectus abdominis muscle flap (VRAM) is considered the gold standard, however has a non-negligible donor site morbidity. The anterolateral thigh flap (ALT) offers reliable soft tissue coverage. The aim of this study was to analyze long term outcomes of composite ALT+VL (vastus lateralis) flaps in perineal reconstruction after APR.

Background and Methods

We report a series of 29 pedicled composite ALT+VL in 27 patients (mean age 63 years +/- 11.2, 23 with radio-chemotherapy) after APR to cover large defects (median 190 cm², 48–600 cm²).

Short and long-term outcomes were analyzed over a median follow-up of 15 months (3-48 months).

Results

Flap related postoperative complications occurred in 16 out of 29 flaps ; 3 major and 13 minor complications. Overall flap-survival was 100%.

Multivariate logistic analysis identified the initial defect size as predictive for complications. Patients with larger defects (≥ 190 cm²) had a significantly higher complication rate (**p=0.006). No perineal hernia occurred. Long term data analysis revealed 3 chronic fistulae, 2 tumor recurrences, 1 flap dysesthesia and 1 perineal occurrence of acne inversa.

Conclusions

The pedicled ALT+VL offers a reliable, stable flap with low morbidity and good long-term outcome. Complications compared favorably with current literature describing perineal reconstructions with VRAM flaps. It is a valid alternative without the setback of potential abdominal donor site morbidity.

FC

Surgical treatment of symmastia: a systematic review and decisional flowchart

Sapino Gianluca^{1,2}, Guillier David¹, Watfa William¹, Raffoul Wassim¹, di Summa Pietro Giovanni¹

¹ Department of Plastic, Reconstructive and Hand Surgery, Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne;

² Department of Plastic and Reconstructive Surgery, Policlinico di Modena, Modena (IT)

Background

The term "symmastia" defines a confluence across the mid-sternal line of the breast mounds and subsequent loss of adhesion between sternum and pre-sternal skin. This condition can be congenital or iatrogenic. Despite the number of different treatments published in literature, no systematic review or surgical techniques classification has been attempted in literature. The purpose of this review is to summarize current literature on surgical management of symmastia and to provide a decisional flowchart to guide the surgeon in such challenging operations.

Methods

In accordance with the PRISMA guidelines, PubMed database was queried for papers describing symmastia surgical treatment, along with operative indications, outcomes and complications.

Results

23 articles and 118 patients were finally included in the review. Four main categories of treatment were identified : dermosternal adhesions, capsulorrhaphy, neo-pocket creation and muscle repair. Symmastia correction was achieved and satisfactory in 108 of patients, despite varying techniques. Globally, recurrence was the most frequent complication, reported in the 8.5% of cases.

Conclusion

Symmastia represent a difficult condition to treat and recurrence is a common problem. Because of the low number of patients involved in the studies, it is difficult to make conclusions as to the superiority of one technique over another. However, this review, collecting comprehensively for the first time the surgical knowledge over this topic, could guide the surgeon to choose the best surgical treatment based on nowadays evidence.

FC**Reconstruction of lower limb soft tissue defects with propeller perforator flaps with or without hardware: a case-control study**

Schaffer C¹, Sapino G², Guillier D³, Raffoul W¹, di Summa PG¹

¹ Plastic, Reconstructive and Hand Surgery, Centre Hospitalier Universitaire Vaudois (CHUV);

² Plastic Surgery, University Hospital, Modena; ³ Plastic Surgery, Dijon University Hospital, Dijon

Introduction

Reconstruction of soft tissue defects of the lower limb is a common challenge in plastic surgery. When noble structures are exposed in the distal third, free flap generally represent the gold standard. However, the perforasome concept and local perforator flap has strongly impacted the reconstructive ladder for the last decade. Still, venous congestion and distal flap necrosis may jeopardize reconstruction if hardware is present. This work evaluates lower limb reconstruction using propeller perforator flaps, comparing outcomes in patients with and without hardware.

Material and Methods

The retrospective investigation of institution database ranged from 2013 and 2019, including only patients treated with a propeller perforator flap for distal third lower limb reconstruction. All reconstructions with less than 6 months follow-up, or performed using local (muscle or fasciocutaneous) or free flaps were excluded. Patients demographics, defect and flap characteristics, presence of hardware, complications and hospital stay were analyzed.

Results

21 patients were finally included, 11 with hardware (group A) and 10 without (group B). Groups were similar in terms of age (mean 51 vs 56), BMI (28 vs 25 kg/m²), defect size (26.6 vs 26.7 cm²), operative time (146 vs 122 min), and follow-up (12 vs 14 months). Patients with hardware experienced significantly longer post-operative stay (23 vs 10 days, p

FC

Free flap in the elderly: the Berne experience

Scheer Helene S¹, Lese Ioana, Grobbelaar Adriaan O¹, Constantinescu Mihai A¹

¹ Department of Plastic and Hand Surgery, University Hospital;

² Bern

Introduction

Microsurgical reconstruction of soft tissue defects in elderly patients is a currently discussed topic. With an aging population worldwide, plastic surgeons are often required to perform complex microsurgical reconstructions on this patient cohort. Reliable data and outcome measures are scarce. The presentation of the Bern experience aims to add more information on this developing field.

Materials and Methods

All patients older than 70 years undergoing free tissue transfer between January 2013 and December 2017 were reviewed in a retrospective study looking mainly at flap failures, other major complications and patient survival period after microsurgical reconstructions.

Results

In total 52 cases were included in the study. With a median age of 74 years (70 - 92) and a need for surgical revisions in 15/52 (28,85%) cases the complication rate is a little higher than in the younger age groups. The free flap failure rate was 5,7% which is higher than our failure rate in younger patients (2,7%). 65,4% of patients survived a minimum of 6 months post microsurgical reconstruction however 18 of 52 patients (34,6%) died in median 185 days (range 5 - 1116 days) after the free flap.

Conclusion

Free tissue transfers can reliably be done in patients over 70 with acceptable flap failure and complication rates. However a relatively high mortality rate within three years is not only due to age related complications and comorbidities but also to the original pathology. These data may facilitate patient decision making when confronted with the prospect of major surgery.

P 13**Volumetrically controlled autologous facial soft tissue reconstruction after surgical treatment and radiotherapy of an intraoral squamous cell carcinoma: a case report**

Schenkel JS¹, Schaller B², Mottini M², Stengle M¹, Constantinescu M¹

¹ University Hospital Bern, Department for Plastic and Hand Surgery, Freiburgstrasse, 3010 Bern, Switzerland;

² University Hospital Bern, Department for Cranio-Maxillofacial Surgery, University Hospital Bern, Freiburgstrasse, 3010 Bern, Switzerland

Fat grafting is an established tool to reconstruct soft tissue defects. However one of the drawbacks appears to be resorption of the fat graft, especially in irradiated tissues. The volumetric loss is difficult to assess clinically.

This case report describes a 56-year-old female with a profound facial soft tissue volume deficit of the right cheek. The patient suffered of an intraoral squamous cell carcinoma of the right mucous membrane that was treated surgically with adjuvant radiotherapy. 6 years after treatment there were no signs of carcinoma recurrence. However the patient was disturbed by her facial appearance and avoided social contact. Functional and esthetic rehabilitation were performed with lipofilling.

The preoperative soft tissue volume deficit was evaluated by 3-D CT analysis and a deficit of 23cc was calculated. To compensate for the anticipated postoperative tissue resorption 28cc of fat were injected into the irradiated right cheek.

The postoperative outcome was measured using photogrammetry with 3-D images and fat graft resorption was then quantified. The initial follow-up exams showed very satisfactory results with good symmetry. 6 weeks postoperative a resorption rate of 24% was calculated. Follow-up exams at 3.5 months and 7 months postoperative showed a resorption of 44% and 50% respectively. A second session of fat grafting was performed 18 months later. To achieve greater overall symmetry the fat grafting procedure was combined with a unilateral neck lift.

The applied techniques are promising for precise evaluation of the postoperative results and helpful in the decision-making process for additional surgical steps.

P 14

A time effective way to produce a fine-diced cartilage graft: the grated Ccartilage graft - proof of the concept and technique description

Schiraldi L.¹, Avagnina A.¹, Di Summa PG³, Raffoul W³, Bouayed S.¹, Hallak B¹

¹ ENT and cervicofacial surgery departement, Hopital de Sion;

² Plastic, reconstructive and hand surgery, CHUV, Lausanne

Diced cartilage (DC) has been successfully used to augment and refine nasal dorsum and nasal tip to produce pleasing long-term results. It provides the added advantages of pliability and moulding in early postoperative period. Traditionally DC graft is placed wrapped in alloplastic material (fibrin glue) or autologous fascia to make it inconspicuous. However, recent trend of injecting unwrapped diced cartilage (UDC) per se is becoming popular. DC graft is usually produced by dicing with a piece of harvested cartilage. Manual cutting of the harvested cartilage with a scalpel or a dermatome knife can be slow, cumbersome, and time-consuming. This article describes a modified "rasp based" technique to quickly produce fine DC graft in rhinoplasty. The grated cartilage technique is a fast and efficient solution to produce a large amount of finely diced cartilage not requiring any other material than the ones normally present in a rhinoplasty surgical set. The graft obtained with our rasp-based technique had a smooth, silky and homogeneous texture. Extrusion by a 1ml syringe resulted extremely easy with very low pressure on the syringe piston. In our experience, when used as wrapped GCG, the strength of the graft was comparable to the standard fibrin glue wrapped DC graft.

FC**Are adipose-derived stromal cells helpful in rejection and graft vasculopathy of rodent vascularized composite allotransplantation?**

Schweizer Riccardo¹, Klein Holger J¹, Kamat Pranitha¹, Waldner Matthias¹, Fuchs Nina¹, Kollar Branislav¹, Taddeo Adriano², Salemi Souzan³, Bode Peter⁴, Eberli Daniel³, Plock Jan A¹

¹ Division of Plastic Surgery and Hand Surgery, University Hospital Zurich, University of Zurich;

² Department of Clinical Research, Inselspital Bern, University of Bern;

³ Department of Urology, University Hospital Zurich, University of Zurich;

⁴ Department of Pathology, University Hospital Zurich, University of Zurich

Introduction

Vascularized composite allotransplantation (VCA) is successful in reconstruction of major defects of upper extremity and face, but rejection and graft vasculopathy (GV) seriously endanger long-term outcome, potentially leading to graft failure. GV remains widely unexplored in VCA, and so does the role of adipose-derived stromal cells (ASCs) in acute rejection.

Methods

Donor ASCs were isolated and characterized. Systemic (SASC) versus local intragraft (LASC) ASC administration were evaluated for therapy of acute rejection and GV in fully mismatched rat hind-limb transplants after discontinuation of immunosuppression (FK-506). Tissues (skin/muscle/vessels) and blood samples analyzed (H&E; Elastin; von Willebrand factor [vWF]) and cytokine analysis (Multiplex).

Results

ASCs suppressed alloresponse and reduced pro-inflammatory cytokines in vitro (IL- α , IL- β , IL-2, GM-CSF). In vivo, ASC administration at grade II rejection significantly delayed its progression to grade III (7.6 \pm 1.1 days SASC, 7.3 \pm 1.1 days LASC vs 2.7 \pm 0.7 days Controls; n=23 rats). PKH-26 stained ASCs were found in the graft at endpoint. GV was significant in controls, whereas ASCs reduced intimal hyperplasia in arterioles of skin and muscle (p

FC

Autologous skin grafts as a substitute for prosthetic mesh in abdominal hernia repair: indications and clinical experience

Schweizer T¹, Osinga R¹, Stärkle R², Mujagic E³, Schaefer DJ¹, Fulco I¹

¹ Department of Plastic, Reconstructive, Aesthetic and Hand Surgery, University Hospital Basel, Switzerland;

² Clarunis, Centre for Gastrointestinal and Liver Diseases, St. Clara Hospital and University Hospital Basel, Switzerland;

³ Department of Surgery, Clinic for Vascular and Transplant Surgery, University Hospital Basel, Switzerland

Introduction

The current standard of practice for the treatment of abdominal hernia is the use of prosthetic mesh to reinforce the abdominal wall. However, mesh-related complications such as infection, delayed wound healing, fistula formation, foreign body sensation and pain are significant problems. In recent studies, prosthetic mesh has been replaced by autologous skin grafts producing similar outcomes. In patients with immunodeficiency or in patients reluctant to foreign material this relatively new surgical technique may represent an equivalent alternative.

Material and methods

Three female patients were operated in an interdisciplinary setting involving visceral, vascular and plastic surgery. One patient presented with a giant abdominal incisional hernia after kidney transplantation and two patients with small periumbilical hernias. The abdominal skin was elevated as for a standard abdominoplasty allowing the hernia to be openly reduced and the fascia to be closed directly. A dermal graft was prepared from the excess skin and used as a reinforcement for the abdominal wall in an onlay technique. The abdominal wall was closed in a standard fashion. In two patients a neo-umbilicus was created.

Results

Minimal follow-up was six months. There were no clinical signs for hernia recurrence, nor infection or wound healing disturbances. Radiological follow-up was available for two patients excluding hernia recurrence. All patients were pleased with the clinical and aesthetic outcome.

Conclusion

In selected patients with immunodeficiency or antipathy to foreign material implantation, autologous skin grafts can be used for abdominal hernia repair as an alternative to prosthetic mesh.

FC

Assessing complications and perioperative processes in microsurgical autologous breast reconstruction

Speck NE¹, Dreier K², Lardi AM¹, Babst D¹, Farhadi J^{1,3}

¹ Plastic Surgery Group AG; Zürich, Switzerland;

² Department of Anesthesiology, Klinik Pyramide am See; Zürich, Switzerland;

³ University of Basel; Basel, Switzerland

Introduction

Microsurgical autologous breast reconstruction is a complex organizational procedure. While surgical experience is a known factor affecting outcome, the role of other in-hospital processes has been less well defined.

Patients and Methods

We performed a retrospective cohort study composed of chart review of all patients who underwent autologous breast reconstruction from January 2019 – April 2020. Surgery was performed at two hospitals, one being a small private clinic (PC, 33 beds) and the other being a large corporate hospital (CH, 335 beds). First, patients were grouped into two cohorts according to the hospital where surgery was performed. Primary outcomes were revision surgery, flap loss and duration of hospital stay. Second, perioperative processes were compared between both hospitals.

Results

A total of 150 autologous breast reconstructions were performed in 126 patients. Baseline demographic data (age, BMI, comorbidities, donor-site) was found statistically comparable between both cohorts. In the PC cohort, lower rate of revision and lower relative frequency of flap loss were observed (p-value = 0.02 and 0.04, respectively). Duration of hospital stay was not significantly different between both hospitals (p-value = 0.35).

Conclusion

The outcome of microsurgical autologous breast reconstruction is determined by a multitude of factors. In this study, fewer flap complications occurred at the small private clinic. We postulate that this may be due to the lower number of staff involved, which facilitates establishing routine and may ultimately lead to less variation in care. The validity of these findings needs to be assessed in prospective studies.

FC

Establishing a swim test for functional assessment of peripheral nerve regeneration in a rat model

Targosinski S¹, Henzi A², Engmann AK^{3,4}, Rushing EJ², Barth AA¹, Klein HJ¹, Giovanoli P¹, Schwab ME^{3,4}, Plock JA¹, Schweizer R¹

¹ Department of Plastic Surgery and Hand Surgery, University Hospital Zurich, Regenerative and Reconstructive Plastic Surgery Laboratory, University of Zurich, Switzerland;

² Institute of Neuropathology, University Hospital Zurich, University of Zurich, Switzerland;

³ Department of Health Sciences and Technology, ETH Zurich, Switzerland;

⁴ Brain Research Institute, University of Zurich, Switzerland

Introduction

Functional tests have been utilized to assess the efficacy of therapeutics augmenting peripheral nerve regeneration. Frequently the experimental tools lack reliability and ease of performance. Here we investigated a swim test (ST) for monitoring of functional return in a sciatic cut and repair model in rats.

Methods

Lewis rats underwent sciatic transection (RES;n=6), transection and direct repair (TSR;n=6) or repair with a 10mm reversed nerve autograft (GFT;n=6). A glass tank (150x15x40cm) filled with water and a multi-angle mirror arrangement were placed in front of a highspeed camera. Swims and static sciatic index (SSI) were recorded over 16 weeks for offline analyses. Gastrocnemius muscle ratio and nerve-specific histology were examined.

Results

The ST analysis was capable of identifying the nerve transection in horizontal excursion, ankle joint range of motion (ROM), swim toe spread (SwTS) and SSI (all p

FC

Clinical outcome of different reconstructive approaches for axillary defects secondary to wide excision of acne inversa

Tereshenko V¹, Schweizer R¹, Waldner M¹, Kim BS¹, Lindenblatt N¹, Giovanoli P¹, Klein HJ¹

¹ Department of Plastic Surgery and Hand Surgery, UniversitätsSpital Zürich

Background

Radical excision is the only curative approach in patients with extensive acne inversa. Different concepts for axillary reconstruction exist, but data on their clinical outcome are scarce.

Methods

Comparative study of three reconstruction methods [posterior arm flap vs. Vacuum-Assisted Closure (VAC)+split thickness skin graft (STSG) vs. open treatment] for axillary defects in patients with axillary acne inversa treated at the University Hospital Zurich between 2010 and 2020.

Results

A total of 20 patients (mean age 38 ± 11 years, mean BMI 30.8 ± 5.1 kg/m², Hurley stage II-III) with 38 operated axillae were stratified according to their type of reconstruction. Mean operation time was 173 ± 41 min in the flap group (cumulative 237 ± 68 minutes), 61 ± 40 min in the VAC+STSG group (cumulative 184 ± 139 min), and 21 ± 8 minutes in the OT group. The cumulative length of stay was 6.5 ± 2.4 days in the flap group, 12.3 ± 6.5 days in the VAC+STSG group, and 2.7 ± 2.1 days in the OT group. Time to complete wound healing was 35 ± 20 days in the flap group, 78 ± 32 days in the VAC+STSG group, and 90 ± 36 days in the OT group. Vancouver Scar scale score was 5.5 ± 2.4 in the flap group, 10.0 ± 1.5 in the VAC+STSG group and 8.7 ± 2.5 in the OT group. Two patients within the VAC+STSG group demonstrated functional impairment of arm abduction/elevation. Protective sensate restoration was achieved in the flap group only.

Conclusion

Despite an increased (cumulative) operation time, axillary reconstruction by the posterior arm flap yields reduced length of stay, less time to complete wound healing along with restoration of a protective sensibility and less axillary scarring avoiding functional deficits.

FC

Distal forearm sarcoma : which reconstruction can we offer after en-bloc multiple tissue resection ?

Triolo Julie¹, Gjika Ergys¹, Beaulieu Jean-Yves¹, Balagué Nicolas^{1,2}

¹ Hôpitaux Universitaires de Genève;

² Hôpital du valais

Introduction

Distal forearm sarcoma often require amputation to achieve tumor-free margins. However in selected cases, wide excision and multiple tissue reconstruction offers the possibility of limb sparing surgery with good oncological control.

Material and method

Between 2017-2019,we performed 2 forearm reconstruction in 48 and 32 y.o. patients. They underwent surgical excision with tumor-free margins after neoadjuvant radiotherapy. The surgery consisted in skin, flexor tendons, median nerve and radial artery resection. One patient required radiocarpal joint removal. We performed allograft of FDPs and FPL tendons, median nerve, and vascular bypass. Fasciocutaneous free flaps (radial forearm flap and parascapular flap) were used for coverage. The radiocarpal joint was reconstructed by a total wrist prosthesis. Radiological and clinical follow-up was conducted.

Results

All patients remained disease free with no local recurrence nor distant metastasis. The aesthetic outcome was satisfying. The average ROM in flexion-extension and pronosupination was respectively 90° and 167°. Fingers mobilities allowed palm contact. The first patient was able to return to daily activities at 6 months. Second patient returned to work at 5 months. There was no complication to report.

Conclusion

In selected cases,a wide excision preserving the upper limb with multiple tissue reconstruction is a feasible option with good oncological and functional results.Allogenic tendon grafts offer a good option to recover an acceptable hand fuction.However, an intensive hand therapy support is necessary.Fascicutaneous flap support good tissue coverage and limits tendons adhesions.

P 2**Fluorescence angiography-assisted debridement of critically perfused glabrous skin in degloving foot injuries**

Vasella Mauro¹, Guidi Marco¹, Waldner Matthias¹, Calcagni Maurizio¹, Giovanoli Pietro¹, Früh Florian¹
¹ Department of Plastic Surgery and Hand Surgery, University Hospital Zurich

Introduction

Degloving foot injuries are rare and challenging injuries, generally associated with life-long sequelae for patients. Degloving is an avulsion of cutaneous and subcutaneous layers resulting in exposure of deeper tissues and mostly the consequence of run-over accidents with significant shearing forces. Appropriate debridement of demarcated soft tissues and preservation of glabrous skin is key before reconstruction in degloved foot injuries, underlining the value of assessment of skin perfusion. Indocyanine green fluorescence angiography (ICG-FA) is used for assessment of tissue perfusion and facilitates glabrous skin reconstruction. In the present work we report our experience with ICG-FA-assisted reconstruction of degloving foot injuries.

Material and methods

A 33-year-old male and a 6-year-old girl suffered severe foot injuries resulting in plantar degloving. After fracture fixation, ICG-FA-assisted debridement was performed. The protocol consisted of intravenous application of 1 mL ICG dye followed by 10 mL saline bolus. Video recording was performed using an infrared camera.

Results

ICG-FA-assisted debridement allowed a more precise skin resection resulting in a notably better preservation of glabrous skin than a debridement solely based on clinical evaluation. In both cases reconstruction was performed using a latissimus dorsi free flap. Both patients reported good function after 6 months with uneventful healing.

Conclusion

ICG is routinely applied in reconstructive surgery. In conclusion, ICG-FA is safe, user-friendly and quick with minimal risks, expanding the armamentarium of the reconstructive surgeon and useful for debridement of plantar degloving injuries.

FC

Delayed enzymatic debridement in severe burns: proof of concept

Waldner Matthias¹, Zucal Isabel¹, Gentsch Tony², Klein Holger Jan¹, Schweizer Riccardo¹, Kim Bong Sung¹, Giovanoli Pietro¹, Plock Jan Alexander¹

¹ University Hospital Zürich, Department of Plastic Surgery, Switzerland;

² Berufsgenossenschaftliche Unfallklinik Frankfurt am Main, Division of Plastic-, Hand- and Reconstructive Surgery, Germany

Introduction

Enzymatic debridement (ED) is a powerful novel therapy for the treatment of severe burns. Standard ED is performed within the first 72h after burn injuries, following a presoaking phase. Little evidence exists on the effectiveness of ED later than 72h after trauma. In this retrospective study, we compared outcomes of burn patients treated within or later than 72h after injury.

Patients and Methods

110 Patients treated with ED for severe burns between 2016 and 2020 were included. Patients treated later than 72h after trauma were identified and matched to a control group treated within 72h. Matching criteria included age, area treated with ED, and localization of ED. Exclusion criteria were abbreviated burn severity index (ABSI) >12 and death within the first 5 days after burn injury.

Results

16 patients matching the criteria were identified. Mean age was 54±19.0y, m:f 11:5, mean ABSI 6.3±3.2. Secondary surgical procedures were performed in 61% of cases comparable to the control group (78%) with a mean of 1.7 secondary procedures in each group. No significant difference between time to complete epithelialization (27.4 days vs. 30.3 days) was observed.

Conclusion

ED is a safe and valuable therapy for eschar removal especially in patients with large TBSA. Our results gave proof to feasibility of delayed ED as part of personalized therapy in burn surgery.

FC

Breast implant illness: a case report

Weitkunat Adina¹, Verstappen Ralph¹, Grünert Jörg¹

¹ Kantonsspital St. Gallen, Klinik für Hand-, Plastische und Wiederherstellungschirurgie

Introduction

Breast implant illness (BII) summarizes non-specific symptoms that patients ascribe to their silicone breast implants. While to date, overwhelming evidence supports the safety of such implants, it remains unclear, whether a link between breast implants and these non-specific symptoms exists. Nonetheless, increased patient advocacy and awareness through social media has led to a growing number of presentations to plastic surgeons.

Case report

We report the case of a 40-year old female patient, who presented with non-specific symptoms following silicone breast augmentation. The patient's more prominent clinical features included alternating swelling of the left and right breast, hair loss, fatigue, coughing and recurring subfebrile temperatures (37.5-38°C) for months. Neither results from an extensive diagnostic work-up, nor clinical symptoms, were attributable to inflammatory rheumatological diseases, infection or other disease entities.

Conclusion

A large proportion of patients, including the presented case, report improvement or resolution of symptoms after explantation in patient-reported outcomes. We believe that further studies are warranted to elucidate the BII entity and its potential causes. Care should be taken to inform patients of the health effects associated with silicone breast implants, including BII, prior to surgery.

FC

Outcomes of DIEP flap compared to implant-based breast reconstruction: a case-control study.

Zen Vukovic E¹, Kalaitzopoulos DR², Feinendegen DL³, Breitling K², Samartzis N²

¹ Clinic of Surgery and Orthopedics, Cantonal Hospital Schaffhausen;

² Clinic of Gynecology, Cantonal Hospital Schaffhausen;

³ Institute for Plastic, Aesthetic and Reconstructive Surgery, Zürich - Zollikon

Breast cancer, given its 12% lifetime risk, is a big concern in women's health. Mastectomy is a treatment and prevention option. Deep inferior epigastric perforator (DIEP) flap is one of the main techniques for autologous reconstruction. Being a free flap operation, it is complex but shows high satisfaction in patients. The aim of this study is to compare reconstruction methods of DIEP flaps to breast implants.

This retrospective case-control study involved female patients ≥18 years old that underwent breast reconstruction with DIEP or implant from 01/2012 to 05/2020 in the Schaffhausen Breast Cancer Center. The following data was extracted from digital clinical records : demographic, tumor, surgery-related, early (during hospitalization) and late complications. Statistical analysis was conducted using SPSS®.

81 patients were found, including 34 DIEP flaps in 28 patients and 86 breast implants in 53 patients. 11 of the latter underwent augmentation for cosmetic reasons. The mean age for DIEP and implant patients was 49 and 51 years respectively. No significant difference between groups was found for postoperative pain and in the early complications requiring intervention. Within the DIEP group, the most common early and late complication was anemia (14%) and dog ears (36%, Dindo 3b) respectively. The implant group showed late complications of implant dislocation and infection (11% each, Dindo 3b).

While DIEP flap is a more complex technique, postoperative pain and complications show no significant difference to breast implants. Our next step is to investigate the impact of each reconstructive surgery on a female's sexual identity, given the important role the breast plays.

FC**Lipedema in massive-weight-loss patients**

Zucal I¹, Barth AA¹, Schweizer R¹, Waldner M¹, Schneider M¹, Giovanoli P¹, Plock JA¹

¹ Department of Plastic Surgery and Handsurgery, University Hospital Zurich, Switzerland

Introduction

Lipedema is a disorder frequently mistaken for accumulation of adipose tissue. If volume-excess persists in the extremities after weight loss, lipedema might be an additional problem. Consequently, adequate therapy should be initiated to ensure satisfying results. In this case series, we present eight patients that were diagnosed for additional lipedema after massive weight-loss. After stabilization of the body weight we performed an interdisciplinary assessment and treatment for lipedema. Here we present a guideline-based approach to an interdisciplinary assessment and treatment of obese patients with concomitant lipedema.

Results

Eight patients with a median age of 48.5 ± 10.0 years, median weight loss of 51.5 ± 26.7 kg and final BMI of 33.7 ± 9.4 kg/m² were identified. Lipedema diagnosis was confirmed according to current guidelines on lipedema. Conservative treatment including compression therapy, physiotherapy, skin care, and/or manual lymph drainage was initiated or continued. If no improvement was achieved after at least six months, surgical therapy was suggested. Health insurance coverage was provided only for 3/8 patients.

Conclusion

Persistent volume-excess in post-bariatric patient should not necessarily be considered as failure. If the extremities are affected predominantly, lipedema may be suspected. Yet symptom-oriented therapy is available. Current guidelines include surgery (liposuction and tissue debulking) as effective measures. Nevertheless, because of lacking cost-effectiveness studies of surgical treatment, health insurance companies usually reject cost coverage requests.



CP CONSULTING – CONGRESS ORGANIZATION

15, avenue des Planches
CH-1820 Montreux

T +41 21 963 21 39

F +41 21 963 21 49

office@cpconsulting.ch

www.cpconsulting.ch

Registration > on-line German > <http://plasticsurgery.ch/aerzte-fachpersonen/jahreskongress/>

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