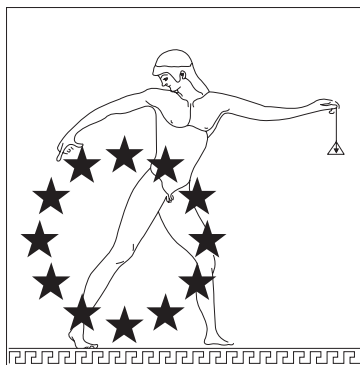


**EURAPS
EUROPEAN ASSOCIATION
OF PLASTIC SURGEONS**



**TWENTY-FIFTH ANNUAL MEETING
May 29-31, 2014**

**LACCO AMENO
ISLE OF ISCHIA, ITALY**

PROGRAM

*UNDER THE PATRONAGE
of
The Italian Ministry of Health
SICPRE Società Italiana di Chirurgia Plastica Ricostruttiva ed Estetica
and
Comune di Lacco Ameno, Isle of Ischia*

THURSDAY, MAY 29, 2014

- 14.00-15.28** **SCIENTIFIC SESSION, No. 1 RESEARCH**
Session Chairpersons:
Oskar C. ASZMANN, Vienna, Austria
Neil BULSTRODE, London, United Kingdom
- 14.00** **AXONAL REGROWTH AFTER NERVE REPAIR OR GRAFT IN YFP TRANSGENIC MICE**
Alexander CS WOOLLARD, Kerstin ROLFE, Jeff W. LICHTMAN, Adriaan O. GROBBELAAR, London, United Kingdom
- 14.08** **THE IMPACT OF DIFFERENT DEGREES OF INJURED C7 AS A MOTOR NERVE FOR TRANSFER: AN EXPERIMENTAL RAT STUDY**
Chien-Han John TZOU, David Chwei-Chin CHUANG, Manfred FREY, Vienna, Austria
- 14.20** **EFFECT OF DENERVATION ON BREAST CANCER GROWTH**
Elisabeth Artemis KAPPOS, Patricia Esther ENGELS, Dirk Johannes SCHAEFER, Daniel KALBERMATTEN, Basel, Switzerland
- 14.32** **ADIPOSE-DERIVED MESENCHYMAL STEM CELLS MAY PROMOTE BREAST CANCER GROWTH AND META-STATIC SPREAD**
Jan A. PLOCK, Riccardo SCHWEIZER, Pranitha KAMAT, Maurizio CALGAGNI, Anne-Catherine ANDRES, Vijay GORANTLA, Pietro GIOVANOLI, Zurich, Switzerland
- 14.44** **THE RESPONSE OF BREAST CANCER CELLS TO MESENCHYMAL STEM CELLS (MSCS): A POSSIBLE ROLE OF INFLAMMATION BY BREAST IMPLANT**
Luca GRASSETTI, Matteo TORRESSETTI, Elisa BOLLETTA, Alessandro SCALISE, Giovanni DI BENEDETTO, Ancona, Italy
- 14.56** **IMMUNOMODULATION WITH ADIPOSE AND BONE MARROW DERIVED MESENCHYMAL STEM CELLS IN VASCULARIZED COMPOSITE ALLOTRANSPLANTATION**
Jonas SCHNIDER, Nataliya KOSTEREVA, Paulo FANZIO, Wakako TSUJI, Wesheng ZHANG, Mario SOLARI, Sudheer RAVURI, Kacey MARRA, Pietro GIOVANOLI, Jan A. PLOCK, Vijay GORANTLA, Zurich, Switzerland

- 15.08** **A SINGLE INJECTION OF FK506 ENCAPSULATED HYDROGEL DRUG DELIVERY SYSTEM ALLOWS FOR PROLONGED GRAFT SURVIVAL IN ALLOGENEIC LIMB TRANSPLANTATION IN RATS**
Radu OLARIU, Franck LECLERE, Thusitha GAJANAYAKE, Mihai CONSTANTINESCU, Esther VÖGELIN, Bern, Switzerland
- 15.20** **TABLET DEVICES PROVIDE ACCESSIBILITY TO MICROSURGERY TRAINING**
Mohsan Munir MALIK, Nadine HACHAM-HARAM, Dhalia MASUD, Ali Nehme BAHOUN, Pari-Naz MOHANNA, London, United Kingdom
- 16.00-17.40** **SCIENTIFIC SESSION, NO. 2 RESEARCH II**
Session Chairpersons:
Sinikka SUOMINEN, Helsinki, Finland
Benedetto LONGO, Rome, Italy
- PRESENTATION OF THE 4 BEST PAPERS EURAPS RESEARCH COUNCIL MEETING ANTALYA 2013**
- 16.00** **BREAST RECONSTRUCTION WITH THE DENERVATED LATISSIMUS DORSI MUSCULOCUTANEOUS FLAP**
Pawel SZYCHTA, Mark BUTTERWORTH, Mike DIXON, Dhananjay KULKANI, Ken STEWART, Cameron RAINE, Livingston, United Kingdom
- 16.12** **THE SIGNIFICANCE OF THE AB T LYMPHOCYTE IN ACUTE BURN INJURY**
Mayuran SATHTHIANATHAN, Kenneth LEE, Peter MAITZ, Sydney, Australia
- 16.24** **ACCELERATION OF DISTRACTION OSTEOGENESIS WITH DRUG-RELEASING DISTRATOR**
Ersoy KONAS, M. Emin MAVILI, Devrim DEMIR, Filiz ÖNER, Petek KORKUSZ, H. Ibrahim CANTER, Ankara, Turkey
- 16.36** **HYPERBARIC OXYGEN THERAPY: WHAT TYPE OF WOUND BENEFITS MOST?**
Dominik LÉVIGNE, Ali MODARRESSI, Rodrigue PIGNEL, Fatemeh ATASHI, Brigitte PITTET-CUÉNOD, Geneva, Switzerland
- 16.48** **SOLUBLE ST2 AS A MARKER FOR IMMUNOSUPPRESSION AND RISK OF MORTALITY AFTER THERMAL INJURIES**
Stefan HACKER, Benjamin DIEPLINGER, Stefanie NICKL, Hendrik Jan ANKERSMIT, Thomas HAIDER, Vienna, Austria

- 17.00** **EPIGENETIC INACTIVATION OF TUMOR-SUPPRESSOR GENE P16INK4A IN SPORADIC MELANOMA CORRELATES WITH OVEREXPRESSION OF HISTONE METHYLTRANSFERASE SETDB1 AND CLINOPATHOLOGICAL CHARACTERISTICS**
Grigorios CHAMPSAS, Maria KOSTAKI, Irimi STAVRANKA, Iro MANONA, Othon PAPADOUPOULOS, Athens, Greece
- 17.12** **EXTERNAL VOLUME EXPANSION IN REGENERATIVE AND RECONSTRUCTIVE SURGERY: EVALUATION OF IN VIVO EFFICACY IN A RODENT MODEL.**
Giorgio GIATSIDIS, Dennis P. ORGILL, Boston, MA, USA
- 17.20** **EXTERNAL VOLUME EXPANSION (EVE) IN RECIPIENT SITE PREPARATION TO FAT GRAFTING: EFFECTS AND MECHANISMS.**
Luca LANCEROTTO, Jorge R. LUJAN HERNANDEZ, Alexander D. DEL VECCIO, Dennis P. ORGILL, Franco BASSETTO, Padua, Italy
- 17.28** **SKIN TISSUE ENGINEERING BASED ON SKIN GRAFT REVASCULARISATION – ASSEMBLING THE PIECES**
Nicole LINDENBLATT, Alicia HEGGLIN, Michael GLOCKER, Brigitte VOLLMAR, Pietro GIOVANOLI, Zurich, Switzerland

FRIDAY, MAY 30, 2014

- 08.00-10.00** **SCIENTIFIC SESSION, No. 3 HEAD AND NECK**
Session Chairpersons:
Guido MOLEA, Naples, Italy
Adriaan O. GROBBELAAR, London, United Kingdom
- 08.00** **AGE-RELATED EFFECT OF MONOBLOC FRONTO-FACIAL DISTRACTION ON ORBITAL VOLUME, MORPHOLOGY, AND EXORBITISM IN 29 CROUZON-PFEIFFER CASES: A CONTROLLED STUDY**
Benjamin WAY, Tharsika KARUNAKARAN, Johan NYSJÖ, Roman KHONSARI, Jonathan BRITTO, London, United Kingdom
- 08.12** **INTRACRANIAL VOLUME IN INFANTS WITH SAGITTAL SYNOSTOSIS IS NORMAL**
Giovanni MALTESE, Sara FISCHER, Robert TOVETJÄRN, Peter TARNOW, Lars KÖLBI, Göteborg, Sweden
- 08.20** **MULTIDISCIPLINARY ASPECTS OF 104 PATIENTS WITH PIERRE ROBIN SEQUENCE TREATED AT THE OSLO CLEFT LIP AND PALATE TEAM**
Charles FILIP, Kristin BILLAUD-FERAGEN, Els-Marie

ANDERSSON, Nina LINDBERG, Jorunn SKARTVEIT LEMVIK,
Hans Erik HOGEVOLD, Michael MATZEN, Oslo, Norway

- 08.32 SCALP RECONSTRUCTION IN THE ERA OF PERFORATOR FLAPS: CLINICAL EXPERIENCE ON 44 CONSECUTIVE STA-P BASED FLAPS**
Achille AVETA, Stefania TENNA, Beniamino BRUNETTI, Igor POCCIA, Paolo PERSICHETTI, Rome, Italy
- 08.44 THE SUBMENTAL AND PLATYSMA FLAPS IN HEAD AND NECK RECONSTRUCTION**
Petros KONOFAS, Epameinondas KOSTOPOULOS, Grigorios CHAMPSAS, Othon PAPADOPOULOS, Athens, Greece
- 08.52 FACIAL REANIMATION WITH GRACILIS MUSCLE TRANSFER NEUROTIZED TO CROSS-FACIAL NERVE GRAFT VERSUS MASSETERIC NERVE: A COMPARATIVE STUDY USING THE FACIAL CLIMA EVALUATING SYSTEM.**
Pérez Álvaro CABELLO, Diego MARRÉ, Bernardo HONTANILLA, Pamplona, Spain
- 09.04 THE MICROVASCULAR PLATYSMA MUSCLE FOR EYE CLOSURE IN VII PALSY**
Paul J. GUELINCKX, Annouk PHILLIPRON, Hasselt, Belgium
- 09.16 OUTCOMES OF DIRECT MUSCLE NEUROTIZATION IN PAEDIATRIC PATIENTS WITH FACIAL PARALYSIS**
Dimitrios KARYPIDIS, Julia TERZIS New York, NY, USA
- 09.28 THE ANATOMY OF THE FACIAL VESSELS IN CASES OF CONGENITAL FACIAL PALSY**
Daniel BUTLER, Francis HENRY, Adriaan O. GROBBELAAR, London, United Kingdom
- 09.36 PEDIATRIC FACIAL REANIMATION: A RETROSPECTIVE COHORT ANALYSIS OF FUNCTIONAL OUTCOMES IN PEDIATRIC FACIAL PALSY PATIENTS VIA 3-D VIDEO ANALYSIS.**
Eva PLACHETA, Chieh-Han John TZOU, Alina HOLD, Igor PONA, Manfred FREY, Vienna, Austria
- 09.48 MINI-INVASIVE FASCIASLINGS FOR STATIC RESTORATION OF THE PARALYSED FACE**
Sinikka SUOMINEN, Tuijy YLÄ-KOTOLA, Helsinki, Finland
- 10.30-12.30 SCIENTIFIC SESSION, NO. 4 FLAPS**
Session Chairpersons:
Jan J. VRANCKX, Leuven, Belgium
Sühan AYHAN, Ankara, Turkey

- 10.30 THE RADIOSOME CONCEPT: IN-VIVO ANATOMICAL STUDY OF PERFORATORS OF THE GLUTEAL REGION**
 Enrico VIGATO, Eleonora DE ANTONI, Edoardo DALLA POZZA, Glenda CAPUTO, Maurizio GOVERNA, Verona, Italy
- 10.38 THE MICROVASCULAR ANATOMY OF SUPERIOR AND INFERIOR GLUTEAL ARTERY PERFORATOR FLAPS (SGAP AND IGAP): A FRESH CADAVERIC STUDY AND CLINICAL IMPLICATIONS**
 Anthi GEORGANTOPOULOU, Stavroula PAPANODIMA, Dimitrios VLACHODIMITROPOULOS, Chara SPILIOPOULOU, Othon PAPAPOULOS, Athens, Greece
- 10.50 TRANS ABDOMINAL PELVIC PERINEAL (TAPP) ANTEROLATERAL THIGH FLAP, A NEW TECHNIQUE FOR COMPLEX DEFECT OF PERINEUM AND LOWER BACK**
 Pietro DI SUMMA, Maurice MATTER, Olivier BAUQUIS, Daniel KALBERMATTEN, Wassim RAFFOUL, Lausanne, Switzerland
- 10.58 COMPARISON OF TRAM VS DIEP FLAP IN TOTAL VAGINAL RECONSTRUCTION AFTER PELVIC EXENTERATION**
 Diego MARRÈ, Shan Shan QUI, Christina AUBÀ, Bernardo HONTANILLA, Pamplona, Spain
- 11.10 AESTHETIC REFINEMENT IN THE CREATION OF THE CLITORIS, ITS PREPUTIAL HOOD, AND LABIA MINORA IN FEMALE TRANSEXUAL PATIENTS**
 Oihane GARCIA-SENOSIAIN, Iván MANERO, Jose Maria TRIVINO, Patrizia MONTULL, Barcelona, Spain
- 11.18 COMBINED TONGUE AND FLOOR-OF-THE-MOUTH RECONSTRUCTION WITH 3D-SHAPED PERFORATOR FREE FLAPS: A PROSPECTIVE STUDY**
 Benedetto LONGO, Rosaria LAPORTA, Marco PAGNONI, Michael SOROTOS, Fabio SANTANELLI DI POMPEO, Rome, Italy
- 11.30 DEEP LINGUAL ARTERY AXIAL PROPELLER (DLAAP) FLAP FOR INTRAORAL RECONSTRUCTION: THE REINASSANCE OF LINGUAL FLAPS**
 Adriana CORDOVA, Francesca TOIA, Gabriele GIUNTA, Salvatore D'ARPA, Francesco MOSCHELLA, Palermo, Italy
- 11.42 THREE DIMENSIONAL VIRTUAL PLANNING AND CUSTOMIZED MICROSURGICAL MAXILLARY AND MANDIBULAR RECONSTRUCTION WITH VASCULARIZED FIBULAR OSSEOUS FLAP**
 Georgios GKREMOUTIS, Hannu KUOKKANEN, Jussi

LARANNE, Aimo MIETTINEN, Minna KAARIANEN, Tampere, Finland

- 11.50** **RECURRENT GIANT MANDIBULAR AMELOBLASTOMA IN YOUNG ADULTS.**
Andreas GRAVVANIS, Dimitrios ANTERIOTIS, Nick KATSIKERIS, Dimosthenis TSOUTSOS, Athens, Greece
- 11.58** **SALVAGE OF EXPOSED IMPLANTABLE DEVICES: WHEN AND HOW**
Francesca TOIA, Salvatore D'ARPA, Adriana CORDOVA, Francesco MOSCHELLA, Palermo, Italy
- 12.06** **NO DIFFERENCE IN RADIATION DOSES TO ORGANS AT RISK IN POSTMASTECTOMY RADIOTHERAPY WITH OR WITHOUT IMMEDIATE BREAST RECONSTRUCTION**
Marie WICKMAN-CHANTEREAU, Dmytro UNUKOVYCH, Kerstin SANDELIN, Giovanna GAGLIARDI, Annelie LILJEGREN, Stockholm, Sweden
- 14.00-15.30** **SCIENTIFIC SESSION, NO. 5 HAND/NERVE**
Session Chairpersons:
Esther VÖGELIN, Bern, Switzerland
A. Lee DELLON, Towson, USA
- 14.00** **NEW SURGICAL TREATMENT FOR THE TRAUMATIC MALLET FINGER: THE DEEPI THELIALIZED SKIN FLAP**
Alexandru GEORGESCU, Irina CAPOTA, Eleana MATEI, Actavian ALARIU, Cluj Napoca, Romania
- 14.12** **SKIN INVOLVEMENT IN DUPUYTREN'S DISEASE: CLINICAL AND HISTOPATHOLOGICAL PROSPECTIVE EVALUATION.**
Andrea FIGUS, Ryckie G WADE, Lazlo IGALI, Norwich, United Kingdom
- 14.24** **BIONIC RECONSTRUCTION RESTORES HAND FUNCTION AFTER ELECTIVE AMPUTATION IN PATIENTS WITH SEVERE BRACHIAL PLEXUS LESIONS**
Oscar C ASZMANN, Aidan ROCHE, Stefan SALMINGER, Malvina HERZEG, Christian HOFER, Vienna, Austria
- 14.36** **THE USE OF ADIPOSE-DERIVED REGENERATIVE CELLS (ADRCs) IN THE TREATMENT OF SCLERODERMA OF THE HANDS: A PROSPECTIVE TRIAL**
Guy MAGALON, Pierre NGUYEN, Aurelie DAUMAS, Florence SABATIER, Brigitte GRANEL, Marseille, France
- 14.48** **FAT GRAFTING THE HAND: A VERSATILE PROCEDURE**

Roger KHOURI Jr., Eufemiano CARDOSO, Roger KHOURI,
Miami, FL, USA

- 15.00 THE NECKTIE LASSO: AN ORIGINAL DYNAMIC TECHNIQUE FOR THE SIMULTANEOUS TREATMENT OF WARTENBERG'S SIGN AND CLAWHAND DEFORMITIES IN THE ULNAR NERVE PALSY**
Amin BELMAHI, Rabat, Marocco
- 15.08 SITTING IS A PAIN IN THE ISCHIA**
A. Lee DELLON, Towson, Maryland, USA
- 15.20 MANAGEMENT OF NERVE PAIN USING NEUROMODULATION TECHNIQUE IN OUT PATIENT SETTING AT ST ANDREW'S CENTRE FOR PLASTIC SURGERY**
Aftab SIDDIQUI, Jenny POEL, Lorraine HARE, Manu SOOD, Chelmsford, United Kingdom
- 16.00-16.15 AAPS BEST PAPER 2013**
INTRODUCTION TO AAPS BEST PAPER
Stephan ARIYAN, AAPS-President, New Haven, CT, USA
- EFFECT OF BURN INJURY ON MESENCHYMAL STEM CELLS: MECHANISM AND IMPROVED IMAGING AND TREATMENT OF HETEROTOPIC OSSIFICATION**
Benjamin LEVI, Jonathan R. Peterson, Oluwatobi Eboda, Shailesh Agarwal, Steven R. Buchman, Paul S. Cederna, Chuanwu Xi, Michael D. Morris, David N. Herndon, Wenzhong Xiao, Ronald G. Tompkins, Paul H. Krebsbach, Stewart C. Wang, Ann Arbor, Michigan, USA
- 16.15-17.30 SCIENTIFIC SESSION, NO. 6 *CLINICAL GENERAL***
Session Chairpersons:
Mustapha HAMDI, Brussels, Belgium
Othon PAPADOPOULOS, Athens, Greece
- 16.15 HAS PROPRANOLOL ERADICATED THE NEED FOR SURGERY IN THE MANAGEMENT OF INFANTILE HEMANGIOMA?**
Julien COULIE, Maude COYETTE, Stéphane MONIOTTE, Anne-Christine BATAILLE, Francis ZECH, Laurence M. BOON, Brussels, Belgium
- 16.27 SIROLIMUS: A NOVEL TREATMENT FOR REFRACTORY-TO-STANDARD-CARE VMS.**
Laurence M. BOON, Jeniffer HAMMER, Emmanuel SERONT, Sophie DUPONT, Frank HAMMER, Philippe CLAPUYT, Miikka VIKKULA, Brussels, Belgium

- 16.35 THE SENTINEL LYMPH NODE BIOPSY IN THIN MELANOMA: CORROBORATING EVIDENCE FOR THE NEW GUIDELINES OF STAGING AND TREATMENT OF MELANOMA**
Georgios KECHAGIAS, Aristeia MARRA, Eugenia Jenny KYRIOPOULOS, Athanasios KARONIDIS, Dimosthenis TSOUTSOS, Athens, Greece
- 16.43 POSITIVE SENTINEL NODE BIOPSY IN MALIGNANT MELANOMA: IS ALWAYS COMPLETION LYMPH NODE DISSECTION WORTHWHILE?**
Edoardo DALLA POZZA, Federica BOSCO, Glenda CAPUTO, Enrico VIGATO, Maurizio GOVERNA, Verona, Italy
- 16.55 A NEW VASCULARIZED CERVICAL LYMPH NODE TRANSPLANTATION MODEL AN ANATOMIC STUDY IN RATS**
Uygur SAFAK, Can OZTURK, Mehmet BOZKURT, Maria MADAJKA, Maria SIEMIONOW, Cleveland, USA
- 17.03 DESIRE FOR BODY CONTOURING SURGERY AFTER BARIATRIC SURGERY: DO BODY MASS INDEX AND WEIGHT LOSS MATTER?**
Salvatore GIORDANO, Mikael VICTORZON, Erkki SUOMINEN, Turku, Finland
- 17.11 IS HIGH SUPERIOR TENSION TECHNIQUE AN EQUIVALENT SUBSTITUTE TO PROGRESSIVE TENSION SUTURES IN POSTBARIATRIC ABDOMINOPLASTY? A COMPARISON PROSPECTIVE STUDY.**
Filippo BORIANI, Andrea MARGARA, Donatella GRANCHI, Nicola BALDINI, Bologna, Italy

SATURDAY, MAY 31, 2014

- 08.30-10.30 SCIENTIFIC SESSION, No. 7 BREAST RECONSTRUCTION**
Session Chairpersons:
Marie WICKMAN-CHANTEREAU, Stockholm, SWEDEN
Hisham FANSA, Munich, GERMANY
- 08.30 BREAST RECONSTRUCTION OUTCOMES FOLLOWING NIPPLE-SPARING MASTECTOMY**
Amy COLWELL, Alex LIN, Eric LIAO, Jonathan WINOGRAD, William AUSTEN, Boston, MA, USA
- 08.42 ONCOPLASTIC BREAST RECONSTRUCTION IN OBESE WOMEN IS SAFER THAN IMMEDIATE BREAST RECONSTRUCTION FOLLOWING TOTAL MASTECTOMY**

Patrick GARVEY, Winnie TONG, Donald BAUMANN, Mark VILLA, Geoffrey ROBB, Houston, TX, USA

- 08.54** **IS ONCE ENOUGH? ANTIBIOTIC PROPHYLAXIS IN IMPLANT BASED BREAST RECONSTRUCTION**
Damir KOSUTIC, Lliyassu ISAH, CW FENN, RJ BRAMHALL, Sarah CLARK, Birmingham, United Kingdom
- 09.26** **THE IMPACT OF DIEP FLAP HARVEST ON RECTUS MUSCLE FUNCTION: IMPORTANCE OF NERVE SUPPLY, VASCULARIZATION AND MUSCLE PRESERVATION.**
Yamina DUPONT, Randy De BAERDEMAEKER, Gerd FABRÉ, Lloyd NANHEKHAN, Marc VANDEVOORT, Leuven, Belgium
- 09.38** **DOES POST-MASTECTOMY RADIOTHERAPY AFFECT THE OUTCOME OF IMMEDIATE AUTOLOGOUS DIEP BREAST RECONSTRUCTION? A REVIEW OF 156 FLAPS.**
Rieka TAGHIZADEH, Margarita MOUSTAKI, Alessia LARDI, Paul ROBLIN, Jian FARHADI, London, United Kingdom
- 09.46** **TAMOXIFEN (SELECTIVE ESTROGEN-RECEPTOR MODULATORS) AND AROMATASE INHIBITORS AS POTENTIAL PERIOPERATIVE THROMBOTIC RISK FACTORS IN FREE FLAP BREAST RECONSTRUCTION**
Michael N MIRZABEIGI, Stephen KOVACH, Liza WU, Joseph SERLETTI, Suhail KANCHWALA, Philadelphia, USA
- 09.58** **IMMEDIATE VERSUS DELAYED CONTRALATERAL BREAST SYMMETRISATION IN UNILATERAL DIEP FLAP BREAST RECONSTRUCTION**
Elaine M SASSOON, Rickie G WADE, Richard M HAYWOOD, Rozina S ALI, Andrea FIGUS, Norwich, United Kingdom
- 10.10** **POST MASTECTOMY BREAST RECONSTRUCTION IN LOCALLY ADVANCED BREAST CANCER PATIENTS; BENEFIT OR CONTROVERSY?**
Anna ANGELAKI, Elena, PROUSSKAIA, Whitney CHOW, Cleona KIRWAN, Jian FARHADI, London, United Kingdom
- 11.00-13.00** **SCIENTIFIC SESSION, NO. 8 BREAST RECONSTRUCTION AND LYMPHATICS**
Session Chairpersons:
Dietmar ULRICH, Nijmegen, The Netherlands
Corrado RUBINO, Salerno, Italy
- 11.00** **SILICONE EXPANDERS AND IMPLANTS MAY JEOPARDIZE ECHOCARDIOGRAPHIC IMAGE QUALITY IN POST-MASTECTOMY PATIENTS**
Marco PIGNATTI, Francesca MANTOVANI, Andrea BARBIERI,

- 11.08 THE REVERSE ABDOMINOPLASTY AND FAT TRANSFER (RAFT) PROCEDURE: A MINIMALLY INVASIVE AUTOLOGOUS BREAST RECONSTRUCTION ALTERNATIVE.**
Roger KHOURI, Eufemiano CARDOSO, Silvia ROTEMBERG, Miami, USA
- 11.16 OUTCOMES OF TREATING STAGE-II LYMPHEDEMA PATIENTS WITH FREE LYMPH NODE TRANSFER (LNT): A PROSPECTIVE CONTROL STUDY**
Dimitrios DIONYSSIOU, Athanasia PANAGOY, Georgios ARSOS, Efterpi Demiri, Thessaloniki, Greece
- 11.24 MICROVASCULAR LYMPH NODE TRANSFER FOR POSTMASTECTOMY LYMPHEDEMA PATIENTS**
Anne SAARIKKO, Tiina VIITANEN, Pauliina HARTIALA, Erkki SUOMINEN, Helsinki, Finland
- 11.36 THE PRESENCE OF ADIPOSE TISSUE IN NON-PITTING LYMPHEDEMA LIMITS COMPLETE LIMB REDUCTION USING CONSERVATIVE TREATMENT OR MICROSURGICAL RECONSTRUCTION**
Håkan BRORSON, Malmö, Sweden
- 11.48 SIMULTANEOUS TREATMENT OF POSTMASTECTOMY LYMPHEDEMA AND BREAST RECONSTRUCTION WITH A CHIMERIC DIEP AND LATERAL GROIN LYMPH NODE FAT PAD FLAP**
Felix Hubertus VOLLBACH, Steffen SCHIRMER, Christoph HEITMANN, Hisham FANSA, Munich, Germany
- 12.00 EVOLUTION FROM TUG TO PAP FLAP FOR BREAST RECONSTRUCTION: COMPARISON AND REFINEMENTS**
David DOWER, Judith HUNTER, Alessia LARDI, Jian FARHADI, London, United Kingdom
- 12.12 IMPROVEMENT OF SENSATION RECOVERY IN TWO-STAGE AUTOLOGOUS BREAST RECONSTRUCTION WITH BURIED DIEP FLAP**
Sarah CALABRESE, Grazia DEVIGILI, Roberto BARAZIOL, Eugenio FRACCALANZA, Gabriele SALLOUM, Jacopo TESEI, Roberto ELOPRA, Mauro SCHIAVON, Udine, Italy
- 12.24 THE USE OF THE SERRATUS ANTERIOR MUSCLE VASCULAR PEDICLE AS RECIPIENT SITE IN DIEP FLAP TRANSFER FOR BREAST RECONSTRUCTION**
Marco PAGNONI, Benedetto LONGO, Rosaria LAPORTA, Enrico CAVALIERI, Fabio SANTANELLI DI POMPEO, Rome Italy

- 12.32** **IS EXTENSION OF THE SUBMUSCULAR POCKET USING A POLYGLACTIN MESH IN SINGLE STAGE IMMEDIATE BREAST RECONSTRUCTION AFTER SKIN SPARING MASTECTOMY SAFE AND EFFECTIVE? A COMPARATIVE STUDY**
 Oanna MEYER GANZ, Mickael TOBALEM, Ale MODARRESSI, Badwi ELIAS, Brigitte PITTET-CUÉNOD, Geneva, Switzerland
- 12.40** **CAPSULAR CONTRACTURE IN IMPLANT BASED BREAST RECONSTRUCTION: THE EFFECT OF PORCINE ACELLULAR DERMAL MATRIX**
 Alessia Marisa LARDI, Mark HO-ASJOE, Jennifer GLENDENNING, Andrew TUTT, Jian FARHADI, London, United Kingdom
- 14.00-15.30** **SCIENTIFIC SESSION, NO. 9 PANEL: EYELID SURGERY**
 Moderator: Grazia SALIMBENI – Pisa, Italy
 Participants:
 Cesare TIENGO, Padua, Italy
 ANATOMY OF THE EYELIDS
 Manfred FREY, Vienna, Austria
 THE PARALYZED EYELIDS
 Bahman GUYURON, Cleveland, USA
 EYELID PTOSIS CORRECTION USING MULLER’S MUSCLE AND CONJUNCTIVA RESECTION
 Barry JONES, London, United Kingdom
 AESTHETIC SURGERY OF THE EYELIDS
 Discussion
 Lelio BALDESCHI, Brussels, Belgium
 GRAVE’S ORBITOPATHY: TIMING AND STEPS OF SURGICAL REHABILITATION
 Neven OLIVARI, Rösrath, Germany
 TRANSPALPEBRAL DECOMPRESSION OF GRAVE’S OPHTALMOPATHY BY FAT REMOVAL:
 AFTER 3000 OPERATIONS
 Discussion
- 16.00-18.00** **SCIENTIFIC SESSION, NO. 10 AESTHETICS**
 Session Chairpersons:
 Gusztáv GULYÁS, Budapest, Hungary
 Guy MAGALON, Marseille, France
- 16.00** **MRI BASED FAT PAD ANALYSIS OF THE YOUNG AND OLD ORBITA**
 Vincenzo PENNA, David BRAIG, Björn G. STARK, Freiburg, Germany
- 16.08** **MODIFIED EXTRACORPOREAL SEPTOPLASTY: RESULTS OF LONG TERM FOLLOW-UP AND OUTCOME**

ASSESSMENT WITH VIDEO-RHINO-HYGROMETER

Giovanni Francesco MARANGI, Vito TOTO, Francesco SEGRETO, Matteo SIGNORETTI, Paolo PERSICHETTI, Rome, Italy

- 16.20** **SEPTUM-ENHANCED MAMMAPLASTY IN INFEROCENTRAL PEDICLED BREAST REDUCTION FOR LARGE-BREASTED AND GIGANTOMASTIA PATIENTS**
Aurelio PORTINCASA, Arianna MAIORELLA, Antonella CAMPANALE, Domenico PARISI, Roberto CECCHINO, Foggia, Italy
- 16.32** **IMMEDIATE MEGA VOLUME FAT GRAFTING TO THE BREAST FOLLOWING REMOVAL OF BREAST IMPLANTS**
Saad DIBO, Marvan ABOUD, Brussels, Belgium
- 16.44** **EVIDENCE-BASED SURGICAL PLANNING IN AESTHETIC BREAST SURGERY-QUANTIFYING LONGITUDINAL CHANGES**
Ciara McGOLDRICK, Elisabeth HALL-FINDLAY, Belfast, United Kingdom
- 16.52** **THE EFFECT OF LATE INFECTION AND ANTIBIOTIC TREATMENT ON CAPSULAR CONTRACTURE IN SILICONE BREAST IMPLANTS: A RAT MODEL**
Katherine MILLER, Álvaro CABELLO, Diego MARRÉ, Bernardo HONTANILLA, Pamplona, Spain
- 17.00** **TOLL-LIKE RECEPTOR 4 AND ESTROGEN RECEPTORS EXPRESSION IN HUMAN BREAST IMPLANT CAPSULES**
Francesco SEGRETO, Giovanni Francesco MARANGI, Daniele TOSI, Luca PENDOLINO, Paolo PERSICHETTI, Rome, Italy
- 17.08** **CONCEPTS IN NAVEL AESTHETIC BASED ON A COMPREHENSIVE SURFACE ANATOMY ANALYSIS.**
Giuseppe VISCONTI, Marzia SALGARELLO, Rome, Italy
- 17.32** **SIMPLIFIED LIPOSTRUCTURE: A TECHNICAL NOTE**
Guido PAOLINI, Matteo AMOROSO, Benedetto LONGO, Michail SOROTOS, Fabio SANTANELLI DE POMPEO, Rome, Italy

ABSTRACTS

THURSDAY, MAY 29, 2014

14.00-15.28 SCIENTIFIC SESSION, No. 1 RESEARCH

Session Chairpersons:

Oskar C. ASZMANN, Vienna, Austria

Neil BULSTRODE, London, United Kingdom

**14.00 AXONAL REGROWTH AFTER NERVE REPAIR OR
GRAFT IN YFP TRANSGENIC MICE**

Alexander CS WOOLLARD, Kerstin ROLFE, Jeff W. LICHTMAN, Adriaan O. GROBBELAAR, London, United Kingdom

INTRODUCTION

The results in facial reanimation are variable. 20% of results are poor where there is little or no excursion of the transferred muscle, or where an initially good result gradually develops chronic tightness. The underlying cause of these poor results is unknown. Our objective was to model reanimation in a transgenic mouse model to provide individual axon "wiring diagrams" of re-innervation after nerve repair or nerve graft.

METHODS

Transgenic mice, which express yellow fluorescent protein in all peripheral axons, were used to study the re-innervation patterns within the interscutularis ear muscle after repair or graft. Re-innervated neuromuscular junctions were assayed using confocal microscopy and the number of extra-muscular axonal processes using 2-photon microscopy.

RESULTS

Nerve repair and graft provide good re-growth of axons and re-innervation of neuromuscular junctions. Regenerating axons show increased branching and reduced overall calibre. Approximately half the original number of axons re-innervate the muscle. This number is the same for both nerve repair and nerve graft, however remodeling to a stable number occurs more slowly in the graft group.

CONCLUSIONS

Approximately half the original number of axons return to muscle following nerve repair or graft. Axons expand their sphere of influence through branching resulting in a doubling of the mean motor unit size. In addition, the reduction in the calibre of regenerating axons may represent changes in axons that are overextended secondary to excessive branching. This is presently being studied. There is no change in the number of neuromuscular junctions after re-innervation however the quality of the junction reoccupation is not optimal. The reduced force and excursion generated by functional muscle transfers in facial reanimation could be a result of alterations in the motor unit size and changes seen at the neuromuscular junction.

14.08 THE IMPACT OF DIFFERENT DEGREES OF INJURED C7 AS A MOTOR NERVE FOR TRANSFER: AN EXPERIMENTAL RAT STUDY

Chien-Han John TZOU, David Chwei-Chin CHUANG, Manfred FREY, Vienna, Austria

PURPOSE OF STUDY

Ipsilateral C7 nerve transfer is an available reconstruction in C5 and C6 avulsion injury of the brachial plexus. However, concomitant injury of a macroscopically normal-looking C7 cannot be ruled out. The purpose of this study was to assess the outcomes when injured C7 is used as a donor nerve for transfer.

METHODOLOGY

The left C5/C6 nerve roots were avulsed on forty Sprague-Dawley rats. The C7 was crushed with jeweler's forceps, transected and transferred to the distal stump of the McN (musculocutaneous nerve) with end-to-end coaptation. The rats were classified into four groups: Group A, 10-second-crush (neurapraxia-Sunderland1); Group B, 30-second-crush (axonometesis-Sunderland2); Group C, 60-second-doubleCrush (endoneurometesis-Sunderland3); and Group D, intact C7. After 12 weeks recovery, biceps muscle-weight, -electromyography(EMG) & -contraction force and histomorphometry of C7&McN were evaluated.

RESULTS

Bicep muscle tetanus contraction force decreased with the increased injury of C7 nerve, group A (positive) showed $36.40 \pm 3.79\text{g}$ (72%), group B (10"crush) $32.65 \pm 12.40\text{g}$ (70%), group C (30"crush) $30.72 \pm 9.76\text{g}$ (55%) and group D (60"doubleCrush) $17.88 \pm 14.16\text{g}$ (39%). Statistically significant difference ($p < 0.002$) could be seen when compared to the control side of $50.29 \pm 12.65\text{g}$ and between group B (10"crush) and group D (60"doubleCrush) ($p = 0.035$).

No statistically significant differences existed between the axon counts of the groups ($p = 0.055$): group A (positive) 826 ± 163.4 , group B (10"crush) 529 ± 169.1 , group C (30"crush) 425 ± 284.5 and group D (60"doubleCrush) 603 ± 191.7 .

CONCLUSION

An injured but macroscopically normal-looking ipsilateral C7 can be used as a motor source to restore function. The result is directly proportional to the severity of injury. Further studies will clarify whether edoneurotmesis injured C7 with a longer recovery time will achieve better functional results, similar to neurapraxia.

14.20 EFFECT OF DENERVATION ON BREAST CANCER GROWTH

Elisabeth Artemis KAPPOS, Patricia Esther ENGELS, Dirk Johannes SCHAEFER, Daniel KALBERMATTEN, Basel, Switzerland

INTRODUCTION

Rather than being an isolated entity within the organism, a tumour interacts strongly with its environment. Previous studies suggest that certain neurotransmitters simultaneously influence the growth of nerves and tumour angiogenesis but may also impact migration, proliferation and the invasion potential of cancer cells. We tested the hypothesis that breast cancer cells grow less aggressively after denervation.

MATERIAL AND METHODS

In Sprague Dawley-rats we built adipofascial flaps of breast tissue with only one ingoing nerve and vessel. In these flaps we injected two million human MB-MDA-231 breast cancer cells into four groups of six animals each were tested. Groups A and C had the ingoing nerve cut leaving the vessel intact. In groups B and D the ingoing nerve was left intact, along with the intact vessel. Groups A and B were euthanised after two, C and D after eight weeks and the tumor volumes measured by MRI.

RESULTS

Tumor growth after denervation was significantly lower than in the flaps with intact nerve ($p < 0.01$). Mean tumor volumes (mm^3) in denervated versus innervated flaps were 8.7 vs 36.8 at 2 W and 7.0 vs 25.4 at 8 W respectively. By two-way ANOVA the reduction was -76% (95% CI: -93%; -22%). Duration had no impact on tumor volumes.

CONCLUSION

Our model of adipofascial flaps of breast tissue provides well defined conditions to discern and quantify the effects of denervation on tumor growth. Our results provide evidence that denervation has an important impact on tumor control. It remains to be shown which molecular mechanisms contribute to these effects. Further studies are needed to explore the therapeutic potential of this approach in human breast cancer. A better understanding of tumor-nerve interaction will contribute to developing new therapeutic options as alternatives to existing protocols in far progressed tumors.

14.32

ADIPOSE-DERIVED MESENCHYMAL STEM CELLS MAY PROMOTE BREAST CANCER GROWTH AND METASTATIC SPREAD

Jan A. PLOCK, Riccardo SCHWEIZER, Pranitha KAMAT, Maurizio CALGAGNI, Anne-Catherine ANDRES, Vijay GORANTLA, Pietro GIOVANOLI, Zurich, Switzerland

Stem-cell enriched fat grafting has recently been proposed for reconstructive purposes on the breast level. This novel approach however has raised concerns about safety of stem cell-based therapies, especially in the post-cancer scenario. The aim of the present study was to investigate the interactions between human adipose-derived mesenchymal stem cells (ASCs) and human breast cancer cells (MCF-7- and MDA cell line), while focusing on the tumor microenvironment, tumor growth and metastatic spread.

Human ASCs (CD34-CD73+CD90+CD105+) and MDA and MCF-7 breast cancer cell lines were used. In vitro co-culture systems and assays were utilized for assessment of cytokine analysis and cell viability. An in-vivo breast cancer model in nu/nu mice was used for assessment of cancer progression and metastasis. Different proportional ratios of ASCs and MDA/MCF-7 cells were investigated. Tumor and metastatic tissue samples were analyzed with multiplex assays for oncogene expression, growth factors and metastatic phenotype markers. In vivo, metastatic spread (40% vs. 0% in controls) and mean tumor size (408 ± 527 mg vs. 38 ± 99 mg in controls, $p < 0.01$) were both significantly increased in MDA tumor bearing animals receiving higher ASC aliquots. In vitro, these results were paralleled by up-regulation of RANTES, eotaxin and TNF- α expression. ASC treatment induced phenotypic switching in MCF-7 tumors, with coincident expression of HER2 oncogene, folistatin and osteopontin. In vivo tumor growth was significantly ($p < 0.05$) promoted. Also metastatic spread was observed in 20% in comparison to 0% in cancer controls without ASC influence.

Our results suggest that human ASCs used in post mastectomy reconstruction or aesthetic breast augmentation may actually promote breast cancer progression. This may not necessarily preclude ASC use, but emphasizes due consideration of a dose dependent effect of such therapies and careful patient selection.

14.44 THE RESPONSE OF BREAST CANCER CELLS TO MESCENCHYMAL STEM CELLS (MSCS): A POSSIBLE ROLE OF INFLAMMATION BY BREAST IMPLANT

Luca GRASSETTI, Matteo TORRESSETTI, Elisa BOLLETTA, Alessandro SCALISE, Giovanni DI BENEDETTO, Ancona, Italy

BACKGROUND

Breast implants are widely used and may cause inflammation to foreign body, followed by fibrous capsule formation around the implant. In cancer, the inflamed stroma is essential for the preservation of the tumor. Mesenchymal stem cells (MSCs) can be recruited to sites of inflammation, and their role in cancer development is debated. Here we assessed the effects of inflammation caused by breast implants on tumor.

METHODS

MSCs were isolated from the fibrous capsules of women that underwent a second plastic surgery, after 1 year (presenting inflammation) or after 20 years (not presenting inflammation) since initial surgery. After characterization, cells were co-cultured with MCF7, a breast cancer cell line, and proliferation and the expression of genes involved in oncogenesis, proliferation, epithelial-to-mesenchymal transition (EMT) were investigated, followed by western blot analyses.

RESULTS

After co-culture with MSCs from the inflamed capsule, MCF7 induced a dose-time dependent increase in proliferation. PCR analyses revealed a dysregulation of genes involved in oncogenesis, proliferation and EMT. The subsequent evaluation by western blot did not confirm these results, evidencing only a modest decrease in the expression of E-Cadherin after co-culture with MSCs (derived both from inflamed or control capsules).

CONCLUSIONS

In conclusion, these data indicate that inflammation caused by breast implants partially affects proliferation of MCF7 but does not influence key mechanisms of tumor development. Further studies are required to better understand mechanisms underlying inflammation, MSCs and paracrine effects and to evaluate potential correlations with clinic outcomes.

14.56

IMMUNOMODULATION WITH ADIPOSE AND BONE MARROW DERIVED MESENCHYMAL STEM CELLS IN VASCULARIZED COMPOSITE ALLOTRANSPLANTATION

Jonas SCHNIDER, Nataliya KOSTEREVA, Paulo FANZIO, Wakako TSUJI, Wesheng ZHANG, Mario SOLARI, Sudheer RAVURI, Kacey MARRA, Pietro GIOVANOLI, Jan A. PLOCK, Vijay GORANTLA, Zurich, Switzerland

Reconstructive transplantation has become a clinical reality over the past decade. Life-long immunosuppression is mandated to sustain graft acceptance with coincident adverse effects. Cellular therapies incorporating bone marrow or adipose tissue derived mesenchymal stem cells (BM-MSC/ASCs) have shown promise as immunomodulatory strategies in autoimmune disease, experimental models of solid organ and vascularized composite allotransplantation (VCA). Lewis (LEW) rat recipients received fully mismatched Brown-Norway (BN) limb transplants in this study. BM-MSCs or ASCs were isolated and cultured. Specific stem cell markers [CD29+CD73+CD90+CD45-] were used to characterize MSCs. BM-MSCs or ASCs were tested for suppressive function in mixed lymphocyte reaction (MLR) assays incorporating BN (donor) lymphocyte stimulation of LEW responders. In addition, stimulated peripheral blood mononuclear cells (PBMCs) were co-cultured with BM-MSCs or ASCs. Both BM-MSCs and ASCs exhibited immunosuppressive function. However, ASCs demonstrated superior efficacy. In *in vivo* experiments, rats were treated one day after the transplantation with ASCs or BM-MSCs (10^6 cells/animals, all cells $<P3$). Immunosuppression with tacrolimus was withdrawn at POD 21. While all animals revealed peripheral multilineage chimerism at 4 weeks and upregulation of regulatory T cells (T reg; CD4CD25FoxP3), these effects were transient and not detectable at later timepoints. Notably $>50\%$ of the animals treated with ASCs or BM-MSCs showed long-term acceptance of the transplanted hindlimb with survival >120 days. These findings were correlated to microchimerism in the marrow, spleen and inconsistently in lymphnodes.

In summary, our results confirm that ASCs and BM-MSCs have immunomodulatory effects that may be beneficial in reducing the intensity, frequency or duration of immunosuppression in VCA. The high cell yields of ASCs combined with the insights supporting the superior immunomodulatory potential of ASCs versus BM-MSCs truly advocate adipose-based cellular therapies. It still remains to be defined if paracrine effects are also involved in tolerogenic or immunomodulatory effects in transplantation.

15.08

A SINGLE INJECTION OF FK506 ENCAPSULATED HYDROGEL DRUG DELIVERY SYSTEM ALLOWS FOR PROLONGED GRAFT SURVIVAL IN ALLOGENEIC LIMB TRANSPLANTATION IN RATS

Radu OLARIU, Franck LECLERE, Thusitha GAJANAYAKE, Mihai CONSTANTINESCU, Esther VÖGELIN, Bern, Switzerland

BACKGROUND

In the setting of vascularized composite allotransplantation (VCA), a non-vital transplantation procedure, it is of great interest to develop less aggressive, safer immunosuppression modalities. We hypothesized that the administration of FK506-encapsulated triglycerol monosterate (TGMS)-based hydrogels might be capable of releasing therapeutic concentration of FK506 over an extended period of time in a rat limb transplantation model.

METHOD

MHC-mismatched, Brown Norway to Lewis rat hind limb transplantation was performed. Rats were injected (subcutaneous) with a single dose of FK506 (7 mg) loaded into a hydrogel system or 7 mg of FK506 alone at post-operative day (POD) 1.

RESULTS

All allografts in the groups with TGMS as a vehicle control or no treatment groups were rejected with a median survival time (MST) of 11 days. Administration of FK506 resulted in extended allograft survival with MST of 33 days. Injection of TGMS-FK506 into the contralateral limb prolonged the graft survival with MST of 75 d. Injection of TGMS encapsulated with FK506 into the transplanted limb resulted in prolonged graft survival with MST of >100 days. Plasma FK506 levels were significantly higher in the FK506 alone-treated group at day 3 compared to the TGMS-FK506-treated group ($p < 0.01$). Although persistent FK506 was detected in the TGMS-FK506-treated group, drug concentration was significantly declined in the FK506 alone-treated group at day 11 and FK506 was not detected at rejection. However, TGMS-FK506-treated group had 0.38 ng/ml at 100 d. Swelling and depot formation ability of the TGMS hydrogels were significantly more efficient in the transplanted limb compared with the contralateral limb.

CONCLUSION

For the first time, we report that an injectable FK506-encapsulated hydrogel system is capable in prolonging allograft survival in a VCA model. Therefore, hydrogel based drug delivery might be a promising approach in enhancing therapeutic window and reducing side effects of current immunosuppressive drugs.

15.20 TABLET DEVICES PROVIDE ACCESSIBILITY TO MICROSURGERY TRAINING

Mohsan Munir MALIK, Nadine HACHAM-HARAM, Dhalia MASUD, Ali Nehme BAHSOUN, Pari-Naz MOHANNA, London, United Kingdom

INTRODUCTION

Surgical trainees require rapid acquisitions of fine motor skills that are needed in microsurgery. The implementation of the European working time directive has had an impact on skills learning. Furthermore, concerns for patient's safety and improving outcomes of microsurgery procedures have restricted training opportunities in hospital. Attending courses can be expensive, and provide only short-term benefits. Literature has shown Lab-based simulation as a possible solution to these problems. However, access to such facilities is limited.

To meet the needs of the modern trainee, we aimed to develop an inexpensive, accessible yet effective microsurgery tablet trainer, as a replacement of surgical microscope, which costs £10,000.

METHOD

We mounted a widely available, long distance working jeweller's loupe to the Apple iPad 4 camera lens, using tape. This provided optical magnification similar to tabletop simulation practice.

A tablet holder was used to position and hold the tablet for practice. We asked 10 expert micro-surgeons to complete a simulated anastomosis on a silicone tube vessel model. They were asked to complete a questionnaire to assess Face (training capacity) and content (performance) validation, using a 5-point likert scale.

RESULTS

Experts (n=10) rated the trainer on performance (graphics, video, and lighting) mean 3.93 and training capacity (development and maintenance of skills) mean 4.30.

CONCLUSION

This tablet-based microsurgical training tool was validated as a possible tool for training. However, a limitation of this model is that it is monoscopic. Further work is needed to quantify the degree of skill transfer. With current economical constraints this model can be a valuable adjunct in the early-training years, and further enhanced with future tablet "apps".

16.00-17.40 SCIENTIFIC SESSION, No. 2 RESEARCH II

Session Chairpersons:

Sinikka SUOMINEN, Helsinki, Finland

Benedetto LONGO, Rome, Italy

PRESENTATION OF THE 4 BEST PAPERS EURAPS RESEARCH COUNCIL MEETING ANTALYA 2013

16.00 BREAST RECONSTRUCTION WITH THE DENERVATED LATISSIMUS DORSI MUSCULOCUTANEOUS FLAP

Pawel SZYCHTA, Mark BUTTERWORTH, Mike DIXON, Dhananjay KULKANI, Ken STEWART, Cameron RAINE, Livingston, United Kingdom

OBJECTIVE

To analyze clinical implications of the thoracodorsal nerve division in the latissimus dorsi musculocutaneous flap breast reconstruction.

PATIENTS AND METHODS

Prospective cohort study was conducted on 29 patients. Breast reconstruction with latissimus dorsi musculocutaneous flap was performed unilaterally in 20 patients or bilaterally in 9 women (38 breasts). Thoracodorsal nerve was divided during reconstruction of 20 breasts (group 1) and was preserved for 18 breasts (group 2). Height, width, projection, area of the covering skin and volume of the reconstructed and healthy breasts were measured on the 3D images of the anterior chest wall, taken 6 weeks and 6 months postoperatively with the Di3D 3D camera. Data regarding tissue consistency, painfulness and animation of the reconstructed breast, symmetry of both breasts and overall satisfaction after the surgery were collected at 6 months.

RESULTS

The reconstructed and healthy breasts decreased in volume in group 1 ($-45.85\text{cm}^3 \pm 48.41\text{cm}^3$, $p=0.0004$; $29.13\text{cm}^3 \pm 14.98\text{cm}^3$, $p=0.0009$) and in group 2 ($-31.5\text{cm}^3 \pm 25.35\text{cm}^3$, $p=0.0001$; $-15.4\text{cm}^3 \pm 21.96\text{cm}^3$, $p=0.0537$). There were no differences in decrease in volume between groups 1 and 2 ($p>0.05$).

Respondents in group 1 in comparison to group 2 showed similar satisfaction of the tissue consistency of the reconstructed breast ($p>0.05$) and the level of symmetry between both breasts ($p>0.05$), gave lower scores for painfulness ($p<0.0001$), animation ($p<0.0001$) and higher scores for the overall satisfaction about the reconstructed breast ($p=0.0001$).

CONCLUSION

We suggest that division of the thoracodorsal nerve during latissimus dorsi musculocutaneous flap breast reconstruction is a useful undertaking to minimize unnatural animation of the reconstructed breast.

16.12 THE SIGNIFICANCE OF THE $\alpha\beta$ T LYMPHOCYTE IN ACUTE BURN INJURY

Mayuran SATHTHIANATHAN, Kenneth LEE, Peter MAITZ, Sydney, Australia

INTRODUCTION

Acute burn injury is associated with significant morbidity and mortality with pathological wound healing and immune dysfunction. This immune dysfunction is multifactorial in nature with T lymphocyte dysfunction and increased levels of Th-2 cytokines. Recent animal studies have suggested the significance of the $\alpha\beta$ T lymphocyte subtype in the wound healing of acute burns. In this prospective observational study, the role of the $\alpha\beta$ T lymphocyte in the wound healing of acute burn injury was assessed.

MATERIALS AND METHODS

Patients admitted to a tertiary Burn centre with full thickness burns of a total body surface area less than 20% were recruited into this study in the 6 months from 01 June 2012 to 31 December 2012. Two specimens were obtained from each patient at the time of debridement. A control punch biopsy of normal non-burned skin and the burn eschar. The specimens were processed for immunohistochemistry of $\alpha\beta$ T lymphocyte, BF-1, CD3, CD4 and CD8 staining with results reported as cell counts per 10 high power field. Data was analysed with the paired samples t-test.

RESULTS

19 patients were recruited of which 17 patients had adequate. A significant increase in the $\alpha\beta$ T lymphocyte was noted in the burn eschar when compared to the non-burned skin ($p < 0.05$ 95%CI 0.104-1.09). This became non-significant when represented as a percentage of the total number of T lymphocytes i.e. CD3+ staining cells ($p > 0.2$ 95%CI -.101-0.369). Further analysis demonstrated that this significance ($p > 0.05$ 95%CI 0.077-1.07) was seen chiefly in the early burn (<48 hours).

CONCLUSION

The $\alpha\beta$ T lymphocyte population resident in skin is increased following acute burn injury, especially in the early phase of acute burn healing. However the small size of this cell population in relation to the other T lymphocytes present questions the clinical significance of this finding.

16.24 ACCELERATION OF DISTRACTION OSTEOGENESIS WITH DRUG-RELEASING DISTRACTOR

Ersoy KONAS, M. Emin MAVILI, Devrim DEMIR, Filiz ÖNER, Petek KORKUSZ, H. Ibrahim CANTER, Ankara, Turkey

PURPOSE

The aim of this study was to develop an internal distractor to release a drug to the distraction site during the distraction process and to investigate whether intermittent bone morphogenetic protein (BMP)-2 containing chitosan hydrogel infusion will improve radiological and histological parameters of distraction osteogenesis when compared to control groups.

MATERIAL AND METHOD

A drug delivering distractor, has the capability of certain amount of drug releasing into the distraction gap with the activation has been developed. Experimental groups were control group (n = 6), 2µg single dose BMP-2-chitosan hydrogel infused group (n = 6), and 2µg intermittent BMP-2 containing chitosan hydrogel infused group (n = 6). In intermittent BMP released group, 0.25µg BMP-2 loaded chitosan hydrogel injected into the distraction gap for controlled BMP release every day. Radiological and histological evaluation methods have been conducted.

RESULTS

Intermittent BMP-chitosan infusion group presented significantly better radiological ($p < 0.05$) and histological ($p < 0.05$) scores of distraction osteogenesis healing when compared to single dose BMP-chitosan injected and control groups. Ossification area in radiological quantification of the Intermittent BMP-chitosan infusion group were significantly ($p < 0.05$) higher than that of control and single-dose BMP-2-injected groups at the end of the consolidation. Single-dose BMP-2-injected group showed significantly ($p < 0.05$) better radiological findings than the control group. BMP loaded chitosan hydrogel acted as an effective osteoinductive agent. The distractor effectively stabilized the distraction osteogenesis site while allowing intermittent BMP-chitosan infusion.

CONCLUSION

Intermittent infusion of BMP-2-loaded chitosan into the distraction zone facilitates ossification. This investigation has proved (1) the effectiveness of use of a drug-releasing internal distractor; (2) distraction with an osteoinductive drug-releasing distractor can increase ossification in distraction osteogenesis; and (3) chitosan, used in this study, was biocompatible and particles acted as bony extracellular matrix elements and integrated with the tissue.

16.36 HYPERBARIC OXYGEN THERAPY: WHAT TYPE OF WOUND BENEFITS MOST?

Dominik LÉVIGNE, Ali MODARRESSI, Rodrigue PIGNEL, Fatemeh ATASHI, Brigitte PITTET-CUÉNOD, Geneva, Switzerland

INTRODUCTION

Chronic wounds constitute a growing health problem, predominantly due to the spreading pandemic of diabetes mellitus, and their treatment is still inconsistent and empirical. Hyperbaric oxygen therapy (HBOT) is a promising method to improve wound healing but its mechanisms of action are still unclear and its indications yet to define. The aim of this in vivo study was to elucidate the effects of HBOT in different wound conditions.

MATERIALS AND METHODS

The effect of HBOT was assessed in four different wound conditions: non-ischemic or ischemic wounds in non-diabetic or streptozotocine-induced diabetic rats. The wounds were inflicted on the dorsal aspect of both hind feet. To create an ischemic condition, the left femoral arteries of all animals were resected. 34 animals were treated in a hyperbaric chamber with pure oxygen at 2.5ata, five times a week during 95 minutes. Wound healing was compared between these animals and those receiving only the standard semi-occlusive dressing (n=34). Wounds were assessed until complete wound closure by macroscopic planimetry and digital photography.

RESULTS

Non-ischemic wounds in non-diabetic rats did not benefit from HBOT. In contrast, wounds in ischemic or diabetic conditions closed faster when treated with HBOT and showed a higher contraction rate compared to standard wound dressing. Ischemic wounds in diabetic animals benefited most from HBOT, these wounds closed significantly faster (28 days, SD 1.41) compared to standard wound dressing (42 days, SD 2.12).

CONCLUSION

We conclude that HBOT constitutes a promising therapeutic approach for wounds in the context of diabetes and ischemia while simple wounds are less likely to benefit from it.

16.48 SOLUBLE ST2 AS A MARKER FOR IMMUNOSUPPRESSION AND RISK OF MORTALITY AFTER THERMAL INJURIES

Stefan HACKER, Benjamin DIEPLINGER, Stefanie NICKL, Hendrik Jan ANKERSMIT, Thomas HAIDER, Vienna, Austria

INTRODUCTION

The immune response after a thermal injury develops in different phases. Around three days after the event, a systemic shift towards immunosuppression leads to an increased risk of developing infections - ultimately associated with a higher mortality. The ST2 protein forms a receptor complex for IL-33, a cytokine known for its pro-inflammatory potential. The soluble form (sST2) acts as a decoy receptor in the blood stream and blocks IL-33 from binding to its target. Therefore, high levels of sST2 lead to an impaired immune response. The aim of this study was to evaluate serum levels of sST2 in burn patients in a time-dependent manner to identify a possible involvement of the sST2/IL-33 pathway in the immune response following burn injuries.

METHODS

We included 32 burn patients admitted to the burn intensive care unit with >10% TBSA (mean: 32.5%) and 8 healthy volunteers. Blood samples were drawn daily for the first 8 days after admission and weekly thereafter. Serum levels of sST2 were measured with commercially available R&D® ELISA kits and confirmed with the FDA-approved Presage® ST2 Assay. Clinical scoring and laboratory testing were routinely performed.

RESULTS

Soluble ST2 serum levels showed a significant 20-fold increase in patients after burn injury compared to healthy controls. The sensitivity and specificity of sST2 to predict mortality were determined by receiver-operating-characteristic analysis (Day 0: area under the curve: 0.833, $p=0.012$; Day 1: AUC: 0.907, $p=0.023$). Cutoff values were identified to further stratify patient groups. Burn patients with high concentrations of sST2 at admission had a 10-fold higher risk of mortality compared to patients with low levels ($p=0.036$).

CONCLUSION

These data suggest an involvement of the sST2/IL-33 pathway in the immunosuppression that is frequently observed after burn trauma. Serum levels of soluble ST2 could serve as an independent biomarker to identify high-risk burn patients.

17.00

EPIGENETIC INACTIVATION OF TUMOR-SUPPRESSOR GENE p16INK4A IN SPORADIC MELANOMA CORRELATES WITH OVEREXPRESSION OF HISTONE METHYLTRANSFERASE SETDB1 AND CLINOPATHOLOGICAL CHARACTERISTICS

Grigorios CHAMPSAS, Maria KOSTAKI, Irini STAVRANKA, Iro MANONA, Othon PAPADOUPOULOS, Athens, Greece

INTRODUCTION

DNA methylation and histone modifications present the major epigenetic events in a wide variety of human malignancies, being recently implicated in melanomas pathology. Mutations, loss of heterozygosity and deletions of the p16INK4A tumor-suppressor protein, the product of the CDKN2A gene have been reported in sporadic and familial cutaneous melanomas. SETDB1 overexpression has been recently correlated with melanoma progression in zebra fish. The objective of this study was to investigate the methylation status and the expression of p16INK4A promoter in peripheral blood and tissue biopsies of sporadic cutaneous melanoma and identify possible correlations with SETDB1 expression and histopathological characteristics.

MATERIALS AND METHODS

Detection of methylated p16INK4A promoter was performed by methylation-specific PCR in DNA extracted from 100 blood samples and 50 biopsies of sporadic melanoma, employing specific primers for methylated and unmethylated DNA. Immunohistochemical analysis of p16INK4A protein expression was performed in 50 tissue biopsies along with staining for the nuclear cell proliferation marker Ki-67 and histone methyltransferase SETDB1.

RESULTS

In 20 out of 50 melanomas (40%), less than 10% of p16INK4A-positive neoplastic cells were observed. The extent of invasion according to Clark was significantly higher in p16INK4A-negative melanomas than in positive ones. Loss of p16 INK4A was marginally correlated with Breslow thickness. However, p16INK4A-positive melanoma samples exhibited higher cell proliferation (based on Ki-67 immunostaining) and higher histone methyltransferase SETDB1 expression.

At the same time, p16INK4A promoter methylation was detected in 15 out of 50, (30%) biopsy specimens and in 3 out of 100 (3%) blood samples of melanoma patients. A negative correlation between mitotic index and p16 INK4A protein expression was observed.

CONCLUSION

Our results reveal an association of SETDB1 expression with promoter methylation of tumor-suppressor protein p16INK4A in advanced sporadic melanomas. This loss of p16INK4A possibly leads to disruption of the G1/S checkpoint regulation resulting in melanoma formation.

17.12 EXTERNAL VOLUME EXPANSION IN REGENERATIVE AND RECONSTRUCTIVE SURGERY: EVALUATION OF IN VIVO EFFICACY IN A RODENT MODEL.

Giorgio GIATSIDIS, Dennis P. ORGILL, Boston, MA, USA

INTRODUCTION/PURPOSE

Tissues micro-mechanical stimulation induces expansion and regeneration. Based on this principle, tissue expanders have become a workhorse in reconstructive surgery. We investigated effectiveness of non-invasive external volume expansion (EVE) by suction with the purpose of revolutionizing reconstructive strategies.

MATERIAL AND METHODS

Fifty twelve-week old wild type mice underwent dorsal skin EVE using a custom-made silicone bell (1cm diameter) connected to a pump providing suction at 25mmHg. Five experimental groups (10 mice each) investigated different strategies (frequency/length of treatment) of EVE (Group A: 2hrs x 1time/day x 1day; Group B: 2hrs x 1time/day x 5days; Group C: 2hrs x 3times/day x 5days; Group-D: 2hrs x 5times/day x 5 days; Group E: 1hr x 6times/day x 5 days). Results were compared to standard control and sham control groups. Digital pictures were taken for macroscopic analysis. Animals were sacrificed 5 days after last stimulation and a full thickness skin biopsy was obtained from stimulated areas. Specimens were analyzed by macroscopic (morphologic) and microscopic methods (H&E, immunohistochemistry, western blot, PCR).

RESULTS

EVE was well tolerated and did not require major anaesthesia or surgical procedures. No complications were observed.

Macroscopic evidence of swelling was assessed after stimulation. Five days after last EVE swelling was reabsorbed and mostly replaced by neo-formed tissue. All samples showed macroscopic evidence of tissue expansion, more pronounced after longer treatments (Groups C,D,E). Histological analysis confirmed effectiveness of EVE in significantly inducing tissue proliferation (2-3 folds increase of epidermal-dermal-subcutaneous thickness) and neoangiogenesis (2-3 folds higher). Longer and more frequent treatments showed improved outcomes in a linear progression. Western-blot and PCR confirmed these results.

CONCLUSIONS

EVE represents a promising approach for non-invasive tissue expansion and regeneration. Length and frequency of treatment impact outcomes. More accurate analysis of different efficacy of stimulation patterns may soon pave the way to innovative reconstructive strategies.

17.20 EXTERNAL VOLUME EXPANSION (EVE) IN RECIPIENT SITE PREPARATION TO FAT GRAFTING: EFFECTS AND MECHANISMS.

Luca LANCEROTTO, Jorge R. LUJAN HERNANDEZ, Alexander D. DEL VECCIO, Dennis P. ORGILL, Franco BASSETTO, Padua, Italy

INTRODUCTION

Recent experiences showed that breast augmentation by fat grafting is a feasible alternative to prostheses and flaps. In cases such as Poland Syndrome this is particularly appealing but the high desirable volume is a limit. External volume expansion (EVE) has been proposed to improve the reliability of fat grafts allowing major volumes of fat to be injected in single operations. Having employed it with success in Poland syndrome cases, we sought to elucidate its mechanisms and effects on recipient sites in animal models.

METHODS

A miniaturized EVE device was applied to mice 2 hours/day for up to 5 days. Tissues were evaluated histologically for edema and inflammation. Hypoxia during stimulation and tissue perfusion after EVE were assessed by pimonidazole staining and hyperspectral imaging. Cell proliferation, vessel remodeling and adipose tissue were analyzed by immunohistochemistry.

RESULTS

Treated tissues were expanded after EVE, developing a macroscopic swelling that slowly regressed. It corresponded histologically to intense edema of the hypodermis. Tissues were hypoxic during EVE, and presented decreased tissue content of both oxygenated- and deoxygenated-hemoglobin persistent for the first hour after EVE release. Inflammation was already high at the end of stimulation, and remained elevated through two days post-EVE. Two days after EVE treatment epidermis and dermis cell proliferation, as well as vascular density were significantly increased. Furthermore, at anti-perilipin staining adipocytes in the hypodermis were doubled in number and a 3-fold increase was seen after 5-days stimulation.

CONCLUSIONS

Tension, ischemia, edema and inflammation all contribute to increasing cell proliferation and angiogenesis, seen even after a single 2 hours cycle. Overall, EVE induces a well-vascularized expanded environment favorable to fat grafts take, explaining clinical success. Furthermore, EVE seems to possess direct pro-adipogenic effects which merit further investigations.

17.28

SKIN TISSUE ENGINEERING BASED ON SKIN GRAFT REVASCULARISATION – ASSEMBLING THE PIECES

Nicole LINDENBLATT, Alicia HEGGLIN, Michael GLOCKER, Brigitte VOLLMAR, Pietro GIOVANOLI, Zurich, Switzerland

INTRODUCTION

Full thickness skin substitutes still fail to acquire adequate oxygen and nutrient supply and do not find their way to clinical practice. Therefore we have been investigating skin graft revascularization on a cellular and molecular level applying different in vivo and in vitro methods in order to apply this knowledge to skin tissue engineering. The aim of this study was to gain additional information about the up-regulation of to date unknown factors using a proteomic approach.

MATERIALS AND METHODS

The modified dorsal skinfold chamber was performed in B6 mice (n=30). Autologous full-thickness skin grafts were transplanted and harvested for proteome analysis after 0, 1, 3, 5 and 10 days. Each mouse underwent intravital microscopy to characterise the stadium of graft take and vascularisation (0d=normal skin, 1d=no perfusion, minor phenotypic angiogenic capillary changes, 3d=graft reperfusion, 5d=graft angiogenic response with bud formation, 10d=reestablishment of normal skin capillary pattern, no more angiogenic changes). Subsequently the protein fraction was separated in a 2D approach followed by MS and MS-MS protein identification.

RESULTS

48 differentially expressed proteins and their expression pattern were identified. A number of proteins could be assigned to the NO pathway. Arginase-1 was found to be decreased leading to an increase of active eNOS. Other identified candidates (HSPB1, HSP6) belong to the group of heat-shock proteins, which are known to be involved in cell migration. Most prominent protein expression changes during the observed time course affected the Arginine-NO pathway, further leading, for the first time, towards Rho-connected signaling pathways.

CONCLUSION

The proteomic approach delivered new insights into the process of skin graft taking on the protein level which can be correlated with past results regarding angiogenesis, timing of vascular growth and vessel connection and expression of proteolytic factors. This knowledge may be beneficial for tissue engineering of skin in the future.

FRIDAY, MAY 30, 2014

08.00-10.00 SCIENTIFIC SESSION, No. 3 HEAD AND NECK

Session Chairpersons:

Guido MOLEA, Naples, Italy

Adriaan O. GROBBELAAR, London, United Kingdom

08.00 AGE-RELATED EFFECT OF MONOBLOC FRONTO-FACIAL DISTRACTION ON ORBITAL VOLUME, MORPHOLOGY, AND EXORBITISM IN 29 CROUZON-PFEIFFER CASES: A CONTROLLED STUDY

Benjamin WAY, Tharsika KARUNAKARAN, Johan NYSJÖ, Roman KHONSARI, Jonathan BRITTO, London, United Kingdom

INTRODUCTION

Monobloc frontofacial distraction (MBD) is valuable in the management of Crouzon-Pfeiffer syndrome (CPS) for functional and aesthetic gain. We ask whether MBD achieves stable volume expansion of the paediatric CPS orbit, its affect upon CPS orbit morphology, and whether these changes are patient age-sensitive.

METHODS

Spiral CT radiologic data from 29 CPS patients (R=3m-17yr) were assessed against 40 age-matched neurosurgical controls. Orbital volume, globe volume, mean orbital morphology, globe protrusion, and orbital cephalometrics were quantified by manual segmentation (Osirix) and a mesh-based haptic-aided semi automatic segmentation technique. Patient data included pre-operative, frame removal point, and delayed postoperative (8-18 month) scans.

RESULTS

CPS orbital volume is significantly smaller than control at all ages ($P<0.0001$). Over-expansion by MBD to significantly greater volume than control is required to correct oculo-orbital disproportion on clinical grounds at all ages ($P<0.05$). This expansion is stable at 1 year in all year groups. Mean orbital morphologies illustrate 'sleeving' of the postop CPS orbit anterior to the MBD osteotomy, which may account for the need for volume over-expansion. CPS globe protrusion significantly exceeds control at all ages ($P<0.05$), is effectively normalised by MBD, and is also stable at 1 year. Both CPS and control orbits are naturally asymmetrical of volume and several cephalometric parameters. Multivariate analysis characterises the CPS orbit as significantly short with a wide medio-lateral apex angle. Control orbital volume increase does not plateau by age 15, however, continued CPS orbital growth is not significant after age 10, reflecting syndromic skeletal prematurity consistent with an FGFR2-induced shift to osteoblast differentiation.

CONCLUSIONS

MBD normalises syndromic oculo-orbital disproportion and globe protrusion by orbital over-expansion and shape change. MBD for appearance change after age 10 will minimise risk of genetic growth regression, whilst monobloc for functional gain is surgically stable at in all age groups studied.

08.12 INTRACRANIAL VOLUME IN INFANTS WITH SAGITTAL SYNOSTOSIS IS NORMAL

Giovanni MALTESE, Sara FISCHER, Robert TOVETJÄRN, Peter TARNOW, Lars KÖLBI, Göteborg, Sweden

INTRODUCTION

Premature sagittal synostosis results in an elongated, narrow skull shape, scaphocephaly. It has been unclear whether the intracranial volume (ICV) of these children is different from that of normal children. The aim of the present study was to precisely determine the ICV in a large cohort of children with premature sagittal synostosis and compare it to the ICV of a sex and age matched control group.

MATERIAL & METHODS

All patients (n = 142) with isolated sagittal synostosis registered in the Göteborg Craniofacial Registry until 2012 with a preoperative CT examination was extracted. For each case a sex and age (± 30 days) matched control was identified from children who had undergone CT for post-traumatic or neurological reasons. The ICV was measured in a semi-automatic MATLAB-program with functions such as region growing, watershed and thresholding in axial CT slices and calculating ICV by the Cavallieri principle.

RESULTS

The ICV for children with sagittal synostosis and the controls were 0.870 ± 0.16 L (mean \pm SD) and 0.870 ± 0.18 L, respectively. The ages for these groups were 173 ± 97 days and 173 ± 101 days, respectively. Subgroup analysis of sex and age at CT (younger vs. older than 180 days), did not reveal any differences between cases and controls.

CONCLUSION

Precise determination of ICV together with adequate controls have made it possible to conclude that children with premature isolated sagittal synostosis have a normal ICV.

**08.20 MULTIDISCIPLINARY ASPECTS OF 104 PATIENTS WITH
PIERRE ROBIN SEQUENCE TREATED AT THE OSLO
CLEFT LIP AND PALATE TEAM**

Charles FILIP, Kristin BILLAUD-FERAGEN, Els-Marie ANDERSSON, Nina LINDBERG, Jorunn SKARTVEIT LEMVIK, Hans Erik HOGEVOLD, Michael MATZEN, Oslo, Norway

INTRODUCTION

The original definition by Pierre Robin describing Pierre Robin sequence (PRS) consists of micrognathia, glossoptosis and airway compromise.

The aim of the study was to describe PRS patients with a cleft palate (CP) from a multidisciplinary perspective.

METHODS

One hundred four individuals with PRS, born between 1980 and 2010, who had been referred to the Oslo Cleft Lip and Palate Team, were included in the study. Data were collected retrospectively.

RESULTS

Nineteen of 104 patients (18.3%) were treated with a naso- or oropharyngeal tube, CPAP and/or a tracheotomy. There was no significant difference in the rate of these interventions between syndromic and nonsyndromic PRS patients ($p=0.41$). Eleven of 104 patients (10.6%) had a confirmed syndrome.

Thirty one of 93 nonsyndromic PRS patients (33.3%) have had or are having surgery for velopharyngeal insufficiency (VPI), which was significantly higher when compared to a control group of 351 CP only patients ($p=0.0040$).

There was no significant difference when syndromic PRS patients were compared to nonsyndromic PRS patients in the rate of VPI surgery ($p=0.42$).

The mean weight percentile for newborns with PRS was 30.9. It decreased to 29.9 at the time of CP repair (mean age 13.7 months)($p=0.78$).

Hypodontia was found in 36 of 81 patients (44.4%) with PRS over the age of six, and was encountered in the lower arch in 30 of these.

Seven of 33 boys (21.2%) with PRS had a diagnosis of autism spectrum disorder (ASD).

CONCLUSION

Nonsyndromic PRS patients had a significantly higher rate of VPI surgery than CP only patients.

The weight percentile was low at birth and no growth spurt was seen in the first year of life.

The prevalence of hypodontia was seven times higher than in the general Norwegian population.

The high rate of ASD among boys with PRS prompts further investigation.

08.32 SCALP RECONSTRUCTION IN THE ERA OF PERFORATOR FLAPS: CLINICAL EXPERIENCE ON 44 CONSECUTIVE STA-P BASED FLAPS

Achille AVETA, Stefania TENNA, Beniamino BRUNETTI, Igor POCCIA, Paolo PERSICHETTI, Rome, Italy

INTRODUCTION

Different techniques are available to reconstruct scalp defects; however, when the cranium is exposed or the hairline compromised, the procedure may become quite challenging. The temporoparietal flap has been described mainly as fascio-cutaneous flap to restore the hair-bearing surface of the upper lip or the eyebrow but only few applications in the scalp have been reported. The authors present their experience on 44 consecutive Superficial Temporal Artery (STA) perforator-based flaps.

MATERIAL AND METHODS

Hair-bearing (23), glabrous (11) or compound (7) defects in the temporal (19), parietal (16) and frontal (6) regions were reconstructed with ipsilateral V-Y-flaps nourished by frontal (6) or parietal branch (35) of the superficial temporal artery. In three cases the flap was based on the parietal branch and tunelized to reach the retroauricular or occipital region. All defects resulted from skin cancer excision. The frontal branch pedicle was used in only six cases to resurface defects in the forehead subunit. Mean defect size was 4.2x3.6cm. Mean flap dimensions were 8x4cm. Including a venous branch in the pedicle was not mandatory. A fascial pedicle around the artery, 2-3cm width, was maintained to minimize flap venous insufficiency. Preoperative handheld doppler was always used.

RESULTS

Forty-three flaps healed uneventfully (97.7% flap survival rate), providing stable coverage with a mean follow-up of 12months. In the early postoperative time (up to 48h), slight venous stasis was observed in 20 flaps (45.4%), but it resolved spontaneously within one week. Three flaps showed severe venous stasis, but in only one case (2.3%) it progressed to distal necrosis requiring surgical revision. No cases of alopecia or hairline distortion were postoperatively registered.

CONCLUSION

The use of superficial temporal artery perforator-based flaps proved to be an elegant and reliable solution to resurface defects in the scalp subunits in both hairy and bald patients with the advantages of tension free inseting and primary closure of the donor site.

08.44 THE SUBMENTAL AND PLATYSMA FLAPS IN HEAD AND NECK RECONSTRUCTION

Petros KONOFAOS, Epameinondas KOSTOPOULOS, Grigorios CHAMPSAS, Othon PAPADOPOULOS, Athens, Greece

INTRODUCTION

The aim of the present study was to compare flap reliability, donor-site morbidity and aesthetic appearance between platysma (PMF) and submental (SMF) myocutaneous flaps in head and neck reconstruction.

PATIENTS AND METHODS

From 1982 to 2011, PMFs were utilized in 24 cases and SMFs in 17 cases. A modified approach was used for SMF: the ipsilateral anterior belly of the digastric muscle was firstly identified and then dissection was proceeded using the standard approach. A Likert scale (ranging from 0 to 10) was used for donor-site appearance evaluation. Flap viability rates were also compared.

RESULTS

Mean flap dimensions were 9.4x5.1cm for SMF and 6.8x4.4cm for PMF. Median patient follow-up was 47 months. Mean harvesting time for PMF was 34.3 min and for SMF 50.1 min ($p < 0.0001$). Partial flap necrosis was observed in four SMF cases (23.52%) and in 5 PMF cases (20.08%) ($p = 1.0$). There was a statistical significant difference at overall cosmesis of donor-site between SMF and PMF patients ($p = 0.035$).

CONCLUSIONS

Using the suggested modified SMF raising technique, elevation and inseting of the flap are faster without affecting flap viability and mobility. Its main advantages are flap reliability and the well-hidden donor-site scar. The longer learning curve is the most distinct disadvantage of SMF. The PMF is thin and pliable with wide arc of rotation. Although PMF harvesting is easier and less time consuming, compared to SMF, tissue bulk, inconstant vascular anatomy, flap reliability and donor-site cosmesis are its main disadvantages. Comparing the two flaps, the SMF has a constant and reliable blood supply, sufficient tissue bulk and minimum donor-site morbidity compared to PMF. SMF can be used for larger defects ($\leq 10 \times 6$ cm) of the lower 2/3 of the face whereas the PMF for smaller defects ($\leq 7 \times 5$ cm) of the proximal 1/3 of the face.

08.52 FACIAL REANIMATION WITH GRACILIS MUSCLE TRANSFER NEUROTIZED TO CROSS-FACIAL NERVE GRAFT VERSUS MASSETERIC NERVE: A COMPARATIVE STUDY USING THE FACIAL CLIMA EVALUATING SYSTEM.

Pérez Álvaro CABELLO, Diego MARRÉ, Bernardo HONTANILLA, Pamplona, Spain

BACKGROUND

Longstanding unilateral facial paralysis is best addressed with microneurovascular muscle transplantation. Neurotization can be obtained from the cross-facial or the masseter nerve. The authors present a quantitative comparison of both procedures using the FACIAL CLIMA system.

METHODS

Forty-seven patients with complete unilateral facial paralysis underwent reanimation with a free gracilis transplant neurotized to either a cross-facial nerve graft (group I, n=20) or to the ipsilateral masseteric nerve (group II, n=27). Commissural displacement and commissural contraction velocity were measured using the FACIAL CLIMA system. Postoperative intragroup commissural displacement and commissural contraction velocity means of the reanimated versus the normal side were first compared using the independent samples t test. Mean percentage of recovery of both parameters were compared between the groups using the independent samples t test.

RESULTS

Significant differences of mean commissural displacement and commissural contraction velocity between the reanimated side and the normal side were observed in group I ($p=0.001$ and $p=0.014$, respectively) but not in group II. Intergroup comparisons showed that both commissural displacement and commissural contraction velocity were higher in group II, with significant differences for commissural displacement ($p=0.048$). Mean percentage of recovery of both parameters was higher in group II, with significant differences for commissural displacement ($p=0.042$).

CONCLUSIONS

Free gracilis muscle transfer neurotized by the masseteric nerve is a reliable technique for reanimation of longstanding facial paralysis. Compared with cross-facial nerve graft neurotization, this technique provides better symmetry and a higher degree of recovery.

CLINICAL QUESTION/LEVEL OF EVIDENCE

Therapeutic, III.

09.04 THE MICROVASCULAR PLATYSMA MUSCLE FOR EYE CLOSURE IN VII PALSY

Paul J. GUELINCKX, Annouk PHILLIPRON, Hasselt, Belgium

The first description of the platysma as a micro-neurovascular unit to replace the lost orbicularis oculi muscle in long-standing facial palsy was done by J.K. Terzis & Lee in 1984. Since then, very few surgical teams have used this muscle for eye closure or blink restoration in selective cases.

OUR AIM

is to describe 20 cases of long-standing VII palsy in which a cross-facial-nerf-graft (CFNG) was combined with a platysma from the non-paralysed side to reconstitute blink and eye closure on the affected side.

MAT. & METHODS

20 patients, 4 to 20 years old, with a unilateral VII palsy, received a CFNG for the eye combined with a smile restoration procedure. 9 to 12 months later a free platysma was placed around the affected eye, revascularised on the temporal vessels and reinnervated by the CFNG. At least 1 year later eye closure and blink were evaluated by 2 independent examiners using a scoring system from 1 (poor) to 5 (normal) described by Terzis & Bruno in 2002 PRS.

RESULTS

80% of the patients had a significant improvement in their eye closure and blink score postop compared to the pre-op status. 11/20 patients had good to excellent results and needed NO eye drops anymore.

4 patients displayed some levator impairment and underwent a reduction of the neo-orbicularis muscle in a 2nd time. 3/20 platysma transfers had insufficient reinnervation and underwent another eye closing procedure.

CONCLUSION

The micro-neurovascular platysma is a unique muscle to restore dynamic emotional eye closure due to its anatomy, its fiber type and its architecture. This study supports the findings of TERZIS et al on eye reanimation. We believe that the FREE PLATYSMA will become a corner stone in the treatment of dynamic facial palsy.

**09.16 OUTCOMES OF DIRECT MUSCLE NEUROTIZATION IN
PAEDIATRIC PATIENTS WITH FACIAL PARALYSIS**

Dimitrios KARYPIDIS, Julia TERZIS New York, NY, USA

INTRODUCTION/PURPOSE

One of the most challenging goals in the treatment of facial paralysis is the successful restoration of the emotional potential of human expression which requires multi-stage reconstructive procedures. We aim at presenting the extensive experience gained in our Center with the technique of direct nerve to muscle neurotization as a part of multistage facial reanimation procedures. Age, denervation time, etiology of the lesion, previous reconstructive procedures and types of muscles responsible for animation, have been analyzed to make evidence based recommendations on the indications of the technique as well as its role and effectiveness in facial reanimation.

MATERIAL AND METHODS

Thirty seven paediatric patients who underwent direct muscle neurotization are included in this presentation. Three groups of patients were created depending on the region that direct neurotization was aiming to augment. Group A involved 28 patients for Eye closure and blink, Group B 15 patients for Smile and Group C 19 patients for Depressor augmentation.

RESULTS

Twenty patients were female and 17 male. The age of the patients ranged from 1 to 16 years with a mean age (\pm SD) of 9 ± 2.8 y.o. Denervation time ranged from 3 months to 15.25 years and the mean denervation time was 6.72 years. Postoperative evaluation included functional scoring and EMG assessment of the neurotized muscles. An overall mean improvement of 36% for Eye closure, 34.25% for Blink, 37% for Smile augmentation and 30% for Depressor function restoration was shown.

CONCLUSION

The role of direct muscle neurotization in paediatric facial reanimation procedures was shown to be substantial. Its effect on the augmentation and promotion of expressivity has also been demonstrated.

09.28 THE ANATOMY OF THE FACIAL VESSELS IN CASES OF CONGENITAL FACIAL PALSY

Daniel BUTLER, Francis HENRY, Adriaan O. GROBBELAAR, London, United Kingdom

INTRODUCTION/PURPOSE

The facial artery and vein are the recipient vessels of choice in cases of free functional muscle transfer for the treatment of facial palsy. Although the anatomical variations of the facial artery and vein are well documented through adult cadaveric studies, the anatomy of the facial vessels amongst patients with congenital facial palsy has not previously been described. In this study we describe our experience of the facial vessel anatomy in cases of both isolated and syndromic congenital facial palsy.

MATERIAL AND METHODS

A retrospective review of all cases of congenital facial palsy treated with free functional muscle transfer between November 2006 and October 2013 was undertaken. Patients that had previous trauma or surgery to the ipsilateral face were excluded. Data was analysed using Chi-square test to calculate a two-tailed p-value.

RESULTS

A total of 69 patients were identified. Forty-nine patients were eligible for inclusion within whom 60 hemi-faces were operated upon. Twenty-one patients had syndromic congenital facial palsy with 57% of these patients having Möbius syndrome. Patients with syndromic congenital facial palsy were significantly more likely to lack a suitable facial artery (14% vs 0%, $p=0.04$) or facial vein (33% vs 4%, $p=0.004$) when compared to patients with isolated congenital facial nerve palsy. The superficial temporal artery and transverse facial vein were the most commonly used alternative recipient vessels.

CONCLUSIONS

We have shown that a significant proportion of patients with syndromic congenital facial palsy may not have an identifiable facial artery or vein which, when compared to previously published data, appears to be unique to this group of patients. Patients with syndromic congenital facial palsy should be considered for pre-operative vascular studies to aid operative planning. We advocate colour Doppler ultrasonography as an accurate, non-invasive investigation to evaluate the facial vessel anatomy.

09.36

PEDIATRIC FACIAL REANIMATION: A RETROSPECTIVE COHORT ANALYSIS OF FUNCTIONAL OUTCOMES IN PEDIATRIC FACIAL PALSY PATIENTS VIA 3-D VIDEO ANALYSIS.

Eva PLACHETA, Chieh-Han John TZOU, Alina HOLD, Igor PONA, Manfred FREY, Vienna, Austria

INTRODUCTION

The concepts of facial reanimation in the pediatric patient group differ from those of adult patients. The aim of this study is to analyze the pediatric patient population treated from 1998 to 2012 who were treated by the senior author.

METHODS

Pediatric facial palsy patients, who underwent facial reanimation surgery and 3-D video analysis of facial movements, were included in this study. 55 of 293 patients were pediatric patients (19% of the patient population, 30 male and 25 female patients). The mean age was 10.6 years. The most common etiologies were congenital (38%) and post-tumor facial palsy (25%). 16% of patients presented with Moebius Syndrome and post-traumatic facial palsy, respectively. All children underwent dynamic facial reanimation. 64% of patients were treated with a gracilis muscle transplant innervated by a cross-face nerve graft. 3 patients were treated with a latissimus dorsi transplant innervated by the contralateral facial nerve. 6 patients (Moebius Syndrome) received bilateral gracilis muscle transplants (innervated by the masseteric nerve or hypoglossal nerve). One patient with Moebius syndrome underwent a bilateral elongated temporalis plasty. 4 patients with incomplete facial palsy were upgraded with cross-face nerve grafts and distal end-to-side neuroorrhaphy.

RESULTS

Microsurgical reanimation of the face showed better functional results in pediatric than in adult patients. The amplitudes of reconstructed movement were higher and thus more symmetric. The 3-D video analysis of patients treated with gracilis muscle transplants innervated by cross-face nerve grafts showed that the "Dynamic Symmetry Index" during "Smiling with showing of the teeth" ($p=0.02$) and "Maximal showing of the teeth" ($p=0.03$) was significantly higher in pediatric than in adult patients.

CONCLUSION

Pediatric facial palsy is primarily treated by microsurgical facial reanimation, especially with free muscle transplants. The functional results are generally better than those achieved in adults.

09.48 MINI-INVASIVE FASCIASLINGS FOR STATIC RESTORATION OF THE PARALYSED FACE

Sinikka SUOMINEN, Tuijy YLÄ-KOTOLA, Helsinki, Finland

INTRODUCTION

Although facial reanimation with either direct neurotisation or microneurovascular flaps is the optimal method for treatment of a paralysed face, many of our patients are not suitable candidates for these operations. Elderly patients or patients with major comorbidities need a simpler, more palliative treatment to be socially acceptable.

PATIENTS AND METHODS

Not satisfied with the described static methods the first author designed her own mini-invasive technique for static fascial support.

23-25cm long and 5-7mm wide fascia lata strips are harvested with a fascia stripper from 1-2cm incisions. The strips are fixed to plastic suction drains that are pulled to place with a blunt trocar. The strips pass through the temporalis muscle, under the zygomatic arch to the nasolabial fold through a subperiosteal facelift incision and return subcutaneously to the temporal area. Scars are placed in the hairline and intraorally. Tension is fixed in a semisitting position to slight overcorrection.

A series of 40 consecutive cases with mean 3 years follow up (1-6 yr) is presented.

RESULTS

All patients maintained achieved facial balance during follow-up, even at 6 years. 8 patients required tightening of the strips in local anaesthesia at 6-12 mo, none were judged too tight. One active sportsman developed a painful fascia hernia at the donor site, no other donorsite problems occurred. One patient developed a postoperative infection of the cheek. Many of the patients can slightly move the cheek when biting as the strips have adhered to the temporalis muscle.

CONCLUSIONS

The described method is an easy fast technique for static restoration of the paralysed face and is a good alternative for patients that are not candidates for major reanimation surgery. The method also works in repositioning of neuromicrovascular gracilis flaps in case the fixation at the nasolabial fold has loosened.

10.30-12.30 SCIENTIFIC SESSION, No. 4 FLAPS

Session Chairpersons:

Jan J. VRANCKX, Leuven, Belgium

Sühan AYHAN, Ankara, Turkey

10.30 THE RADIOSOME CONCEPT: IN-VIVO ANATOMICAL STUDY OF PERFORATORS OF THE GLUTEAL REGION

Enrico VIGATO, Eleonora DE ANTONI, Edoardo DALLA POZZA, Glenda CAPUTO, Maurizio GOVERNA, Verona, Italy

INTRODUCTION

Both the superior and inferior gluteal artery perforator flaps are widely used in pressure-sore repair and in breast reconstruction; however variability in vascular anatomy has limited their more widespread utilization. The current study aims to be the most comprehensive "in vivo" anatomical study of the gluteal region's vascularization in the literature.

MATERIALS AND METHODS

80 lower-extremity computed tomographic angiography scans were considered. Perforators were analyzed in terms of their:

- Location
- Source artery (SGA/IGA/Lumbar Arteries/Superficial circumflex iliac artery/Pudendal artery/Lateral circumflex femoral artery)
- Type
- Diameter

The location of perforators was reproduced using a standardized grid on the coronal plane, centered onto fixed bone landmarks.

This normalization allowed the 80 maps to be compared, obtaining a shared representation of each source artery's vascular territory.

RESULTS

There was a mean of 25.6 ± 5.7 perforators per gluteal region, distributed as follows:

- 11.6 ± 4.8 (45.2%) from the SGA
- 7.9 ± 4.5 (30.8%) from the IGA
- 1.5 ± 0.8 (5.8%) from the lumbar arteries
- 1.2 ± 0.8 (4.7%) from the internal pudendal artery
- 1.2 ± 1 (4.8%) from the lateral circumflex femoral artery
- 0.3 ± 0.7 (1.2%) from the circumflex iliac superficial artery

We defined "radiosome" the vascular territory perfused by a source artery investigated "in vivo" through radiological techniques. Territories of each radiosome are defined in detail referring to anatomical landmarks. Major perforators of SGA and IGA resulted lying along a curve drawn from the posterior-superior border of the iliac crest towards the greater trochanter.

CONCLUSION

As our understanding of cutaneous vasculature continues to improve, so too will our ability to optimize the ideal flap for reconstruction. The innovative method used for this study introduces accuracy in the analysis of gluteal region's vascular anatomy, encompassing the benefits of "in vivo" investigations and the completeness of a cohort study (and not a single cadaver injection) as well.

10.38 THE MICROVASCULAR ANATOMY OF SUPERIOR AND INFERIOR GLUTEAL ARTERY PERFORATOR FLAPS (SGAP AND IGAP): A FRESH CADAVERIC STUDY AND CLINICAL IMPLICATIONS

Anthi GEORGANTOPOULOU, Stavroula PAPADODIMA, Dimitrios VLACHODIMITROPOULOS, Chara SPILIOPOULOU, Othon PAPADOPOULOS, Athens, Greece

INTRODUCTION

Our study aims to highlight anatomical similarities, differences and variations in the microvascular anatomy between SGAP and IGAP flaps.

METHOD

Thirty gluteal flaps (15 SGAP and 15 IGAP) were dissected on 22 adult fresh cadavers. We recorded the number and location of perforators, the characteristics of the main perforator (course, intramuscular/total length and diameter at the level of division at the greater sciatic foramen) and the anatomical variations of the submuscular venous plexus.

RESULTS

The mean number of perforators was similar in both flaps (seven). We found a statistically significant difference in the total length of the vascular pedicle between SGAP (mean: 9.80cm) and IGAP (mean: 13.36cm) flaps, which correlated strongly and was due to the difference in the intramuscular length of the perforator (mean difference of intramuscular length: 3.40cm). There was no statistically significant difference in the diameter of superior and inferior gluteal vessels at the point of pedicle division. Five superior gluteal flaps were found, on their lower half, to have perforators originating from the inferior gluteal artery. These were dominant perforators in two cases. In both flaps, there was significant variability in the thickness of sacral fascia and the amount of fibrofatty tissue deep to it. The close proximity of the inferior gluteal vessels to the sciatic nerve and the posterior cutaneous nerve of the thigh is demonstrated. The complex submuscular venous plexus with confluence of veins, which is typically found on SGAP flaps deep to the sacral fascia, is never encountered on IGAP flaps. We also report a rare anatomical communication between superior and inferior gluteal vessels deep to piriformis muscle and a case of atheromatous disease of the inferior gluteal artery.

CONCLUSION

Our findings are highly relevant to clinical practice and contribute to the understanding of the complex and variable vascular anatomy of these challenging flaps.

10.50 TRANS ABDOMINAL PELVIC PERINEAL (TAPP) ANTE-ROLATERAL THIGH FLAP, A NEW TECHNIQUE FOR COMPLEX DEFECT OF PERINEUM AND LOWER BACK

Pietro DI SUMMA, Maurice MATTER, Olivier BAUQUIS, Daniel KALBERMATTEN, Wassim RAFFOUL, Lausanne, Switzerland

INTRODUCTION

Oncologic resections in pelvic and perineal regions often result in challenging defects to reconstruct. If resection is extended to the lower back, the reconstruction should take in count the necessity of tissue bulk, as well as reliable posterior skin coverage. The anterolateral thigh (ALT) flap is a safe flap for soft tissue reconstruction, but it has never been described to cover middle lower back defects. We present a case series of reconstructions of lower back and pelvis with ALT flap using an innovative trans-abdominal approach after abdominoperineal amputation and massive oncologic surgery.

MATERIALS AND METHODS

Four patients underwent oncologic resection of perineal, pelvis and lower back regions by double approach (perineal and sacral) from march 2008 to june 2011 in our University Hospital. Three out of four patients received preoperative radiotherapy. Patients age was 49 ± 15 years (ave \pm SD). Mean follow-up was 22 ± 5 months (ave \pm SD).

RESULTS

Operative time including the oncologic resection was 296 ± 86 minutes (ave \pm SD). Complications included one venous flap congestion with partial skin necrosis and one case with persistence wound dehiscence. However, this last case presented a multi-metastatic disease and severe cachexia. The remaining two cases healed uneventfully. In all cases the donor site was closed primarily with minimal morbidity.

CONCLUSION

We describe a new technique for reconstruction of pelvic floor and lower back using a musculocutaneous pedicled ALT flap which is transferred to the defect using a trans-abdominal approach. We believe this is a useful option for complex reconstructions where a laparotomy is performed by the general surgeons. This flap provides a large cutaneous island with a reliable blood supply, adequate muscle mass to fill huge perineal-pelvic defects and the possibility to include the fascia lata to reinforce the pelvic floor and avoid perineal hernias. In addition, donor site morbidity is minimal.

10.58 COMPARISON OF TRAM VS DIEP FLAP IN TOTAL VAGINAL RECONSTRUCTION AFTER PELVIC EXENTERATION

Diego MARRÈ, Shan Shan QUI, Christina AUBÀ, Bernardo HONTANILLA, Pamplona, Spain

INTRODUCTION

The TRAM flap has traditionally been one of the most widely used flaps for vaginal reconstruction and dead space filling after pelvic exenteration. Nowadays, perforator flaps, namely deep inferior epigastric artery perforator flap (DIEP), has risen as a reliable alternative for these defects. This study compares the advantages and disadvantages of both flaps.

MATERIAL AND METHODS

Between January 1986 and July 2010, 75 patients underwent pelvic exenteration for gynecologic cancer at our institution. The charts of these patients were retrospectively reviewed. Sixty-two patients had recurrent disease and 13 were primary tumors. Forty patients were submitted to vaginal reconstruction; of these 21 with TRAM flap and seven with DIEP. Flap survival, donor-site morbidity, neovagina stenosis, time for performance and hospital stay were registered for the two groups of patients.

RESULTS

In the TRAM flap group, total flap loss was registered in three cases and partial necrosis in five. Conversely, all DIEP flaps survived uneventfully. Mean time for flap raising was 105 minutes for the TRAM flap group and 63 minutes for the DIEP. No donor-site complications occurred in the group of DIEP flap while four cases of donor-site morbidity were registered in the TRAM flap group. Hospital stay was 23 days for TRAM flap and 16 days for DIEP. Neovagina stenosis was observed in four cases of TRAM flap and only one case of slight introitus stenosis without functional impairment was diagnosed in the DIEP flap group. All patients had normal appearing external genitalia and were satisfied with their neovaginal reconstruction in terms of functionality.

CONCLUSION

The DIEP flap is a reliable alternative for vaginal reconstruction after pelvic exenteration. Compared with the TRAM flap, the DIEP achieves similar functional results, with a trend towards less donor site morbidity, shorter hospital stay and a higher rate of flap survival.

11.10 AESTHETIC REFINEMENT IN THE CREATION OF THE CLITORIS, ITS PREPUTIAL HOOD, AND LABIA MINORA IN FEMALE TRANSEXUAL PATIENTS

Oihane GARCIA-SENOSIAIN, Iván MANERO, Jose Maria TRIVINO, Patrizia MONTULL, Barcelona, Spain

INTRODUCTION

For more than 20 years the pedicled island neurovascular flap of the glans penis has been the standard procedure for neoclitoroplasty in male-to-female genital sex reassignment surgery. The clitoris, its prepuce, and the labia minora remain among the most difficult structures to construct. This study aims to describe the authors' clitoroplasty and vulvoplasty technique and outcome.

MATERIAL/METHODS

Between June 2012 and November 2013, 41 male-to-female sex reassignment surgeries were performed at a single institution. The dorsal glans penis flap is harvested in a letter M fashion with a 1.5-2 cm of attached preputial skin, preserving the dorsal neurovascular bundle. In the introitus, the skin is incised with an inverted V form. The central triangle of the M is used for neoclitoris recreation and is sutured with one buried stitch to the pubic periosteum, leaving it hidden under its hood and labia minora, created by suturing the preputial skin to the introitus skin.

RESULTS

Mean age was 28.4 years (range 17-54) with a mean follow-up of 5.3 months. No severe complications were observed. Five patients developed partial and superficial skin necrosis, four in the preputial hood and one in the neoclitoris, all were treated with local wound care and healed in less than two weeks, without significant sequelae. All 41 patients maintained tactile and erogenous sensitivity and achieved an aesthetically pleasing neoclitoris, clitoral prepuce, and labia minora in the same surgical stage as the vaginoplasty.

CONCLUSION

The proposed technique represents an aesthetic refinement of the previously described pedicled glans penis flap by allowing the creation of a sensate neoclitoris, its preputial hood, and labia minora with excellent functional and cosmetic outcome in the same surgical stage as the sex reassignment.

11.18 COMBINED TONGUE AND FLOOR-OF-THE-MOUTH RECONSTRUCTION WITH 3D-SHAPED PERFORATOR FREE FLAPS: A PROSPECTIVE STUDY

Benedetto LONGO, Rosaria LAPORTA, Marco PAGNONI, Michael SOROTOS, Fabio SANTANELLI DI POMPEO, Rome, Italy

BACKGROUND

Complex defects (COCDs) involving tongue, floor-of-the-mouth and mandible require accurate preoperative reconstructive planning to restore swallowing and speech. Aim of our prospective study was to investigate cosmetic and functional outcomes of COCDs reconstruction using three-dimensional-shaped perforator free flaps.

MATERIAL AND METHODS

Twenty-six oral cancer patients, mean age 63 ± 14 years (range, 49-85) indicated for glossectomy eventually combined with mandibular resection, were enrolled and submitted to three-dimensional-shaped perforator free flap reconstruction. Defects were classified into four types according to tongue resection/reconstruction: type I, anterior hemiglossectomy reconstructed with bilobed anterolateral thigh (ALT) perforator flap; type II, total hemiglossectomy reconstructed with bilobed ALT or vertical-designed deep inferior epigastric perforator (VDIEP) flap; type III, mandibular resection combined with type I or II defect reconstructed with bilobed fibula flap; type IV, total/near-total glossectomy reconstructed with mushroom-shaped ALT perforator flap. One-to-four Likert scale was used to assess swallowing by videofluoroscopy, speech by trained speech pathologist, and cosmesis by independent reconstructive surgeon; Kruskal-Wallis and Bonferroni post-hoc tests were used to compare groups with significant $p < 0.05$.

RESULTS

At mean follow-up of 27.4 months (range, 19-35) we experienced 1 wound dehiscence (4%) and 1 partial necrosis (4%), without functional compromise. Neither total flap necrosis nor local recurrences were observed. Normal speech was found in 12 patients (48%), intelligible in 11 (44%) and slurred speech in 2 (8%); eighteen patients were able to eat a normal diet (72%), seven could eat soft diet (28%); cosmetic result was rated as excellent in 13 patients (52%), good in 12 (48%). No significant differences were observed between different resection/reconstruction group for speech ($p=0.35$), eat ($p=0.21$) and cosmetics ($p=0.87$).

CONCLUSION

Systematic approach with three-dimensional-shaped perforator free flaps based on variable combined tongue and floor-of-the-mouth defects provides optimal functional and cosmetic outcomes. The original reinnervated mushroom-shaped ALT perforator flap was found to be an innovative and effective option for subtotal tongue reconstruction.

11.30 DEEP LINGUAL ARTERY AXIAL PROPELLER (DLAAP) FLAP FOR INTRAORAL RECONSTRUCTION: THE REINASSANCE OF LINGUAL FLAPS

Adriana CORDOVA, Francesca TOIA, Gabriele GIUNTA, Salvatore D'ARPA, Francesco MOSCHELLA, Palermo, Italy

INTRODUCTION

The traditional lingual flap provides ideal mucosal coverage for intraoral defects, but -requiring two surgical stages- has become unpopular. The propeller technique can be used to overcome this main drawback. We present an axial propeller flap for single stage intraoral reconstruction. The flap includes the mucosa of the lateral side of the tongue. It is based only on the deep lingual artery - constant for caliber and site- and veins; thus, we named it Deep Lingual Artery Axial Propeller (DLAAP) flap.

MATERIAL AND METHODS

Between 2011 and 2013, 23 patients (15 males and 8 females, mean age: 65 years) underwent reconstruction with a DLAAP flap after cancer resection in the cheek (n=16), floor of the mouth (n=2), retromolar trigone (n=2), hard palate (n=2) and soft palate (n=1). Mean defect size was 18 cm² (range: 10-32 cm²). Pre- and post-operative (6 months) intraoral function (speaking, chewing, swallowing) was evaluated with the Functional Intraoral Glasgow Scale (FIGS).

RESULTS

We achieved one stage reconstruction with primary donor site closure in all cases. No flap necrosis or other complications were observed besides an infection treated conservatively. All patients resumed oral diet after one week and none required surgical revision. Mean post-operative FIGS score (6 months) was better than the pre-operative (13.1 vs 12.2).

CONCLUSIONS

The DLAAP flap combines the advantages of the traditional lingual flap - reliable axial vascularization and "like with like" reconstruction- with those of a propeller flap: it allows one stage reconstruction, and -due to its increased mobility- has wider indications, that in many cases eliminate the need for a free non-mucosal tissue transfer. The technique is fast, has low morbidity and good functional results. Due to these unique features, we recommend it as a first choice technique to reconstruct average size defects of the oral cavity.

11.42 THREE DIMENSIONAL VIRTUAL PLANNING AND CUSTOMIZED MICROSURGICAL MAXILLARY AND MANDIBULAR RECONSTRUCTION WITH VASCULARIZED FIBULAR OSSEOUS FLAP

Georgios GKREMOUTIS, Hannu KUOKKANEN, Jussi LARANNE, Aimo MIETTINEN, Minna KAARIANEN, Tampere, Finland

INTRODUCTION

The purpose of this study is to present our experience with an evolving technique of precise mandibular and maxillary reconstruction. The technique involves virtual surgical simulation using reconstructed 3D images and creation of staged models to provide precise osteotomies and plating yielding an ideal functional and aesthetic outcome.

MATERIALS AND METHODS

A one center, retrospective study was carried out on patients (n=12) undergoing free fibula flap surgery for craniofacial reconstruction after aggressive benign or malignant disease from January 2012 until November 2013. All patients underwent preoperatively 3D virtual planning with a high resolution computed tomography (CT) of maxillofacial and lower leg regions and after a Web meeting the resection planes of the maxilla/mandible, positioning of the plate and fibula lengths and osteotomy angles were established. Demographical data, surgical factors, perioperative and long-term results were studied.

RESULTS

A total of 12 consecutive patients underwent customized microsurgical reconstruction with free fibula flap after benign or malignant disease resection with age ranging between 39-71 years. The defects were located in maxilla in four and in mandible in eight patients. All defects following tumor resection were reconstructed with free fibula osseous flap. Intraoperatively there was a decreased time of ischaemia and more precise molding of the fibula in comparison with conventional technique, due to preoperative planning. There was one total flap loss in a patient who required reconstruction with a free fibula flap from the contralateral side. Another patient underwent revision of the flap anastomoses due to vascular thrombosis.

CONCLUSION

Customized microsurgical craniofacial reconstruction with free fibula flap aided by preoperative 3D virtual planning is a new, promising method. Computer planning facilitates precise borders in tumor resection and gives immediately exact lines for the osteotomies of the flap, shortening the ischaemia time and enabling good bone contact in the reconstructed mandible or maxilla.

**11.50 RECURRENT GIANT MANDIBULAR AMELOBLASTOMA
IN YOUNG ADULTS.**

Andreas GRAVVANIS, Dimitrios ANTERIOTIS, Nick KATSIKERIS,
Dimosthenis TSOUTSOS, Athens, Greece

BACKGROUND/PURPOSE

Giant Mandibular Ameloblastoma (GMA) is a rare benign odontogenic tumor with marked tendency for recurrence. The purpose of the study is to define the most appropriate management of this locally aggressive tumor in young adults.

METHODS

A retrospective study was performed on patients with GMA less than 30 years old, treated from 2008 to 2011. The data collected included initial treatment, tumor margins, reconstruction and follow-up. Patients self-evaluated speech, chewing, swallowing (Functional Intraoral Glasgow Scale) and facial appearance (University of Washington Quality of Life Questionnaire for Head and Neck) following definitive treatment.

RESULTS

Thirteen patients (mean age 26) were identified with recurrent solid/multicystic disease requiring further treatment. Primary surgery involved enucleation in 7-patients, marginal mandibulectomy in 3-patients and box osteotomy in 3-patients. The average free margins were 0.35cm (ranging from 0.1 to 0.6) and the average number of recurrences was 1.5 (ranging from 1 to 3).

Definitive treatment involved segmental mandibulectomy and reconstruction with vascularized fibular flap, in all patients. Mandibular resection was planned at least 2 cm beyond the radiological limit, and free margins (1.4cm in average) were achieved in all patients. All flaps were transplanted successfully, and no major complication occurred postoperatively. Seven patients had immediate reconstruction (group-A) and 6 secondary (group-B). The average bone defect was 7.2cm in group-A and 7cm in group-B ($p>0.05$). The mean follow-up was 21 months (16-34), and no patient showed clinical or radiologic signs of recurrence. In group-A, Functional score was 13.7/15 and Facial Appearance score was 4.5/5, whilst in group-B were 11.5/15 and 3.6/5 respectively (both $p<0.05$).

CONCLUSION

Considering the frequent recurrences of the disease in young adults and the high success of the fibular flap, aggressive resection of the mandibular ameloblastoma and immediate reconstruction is strongly advised.

11.58 SALVAGE OF EXPOSED IMPLANTABLE DEVICES: WHEN AND HOW

Francesca TOIA, Salvatore D'ARPA, Adriana CORDOVA, Francesco MOSCHELLA, Palermo, Italy

INTRODUCTION

Implantable venous and electrical devices are prone to exposure and infection. As an example, up to 11% of venous access ports require removal during treatment, due to pocket infection or pressure necrosis.

Indications for treatment are controversial, but - especially if infected - exposed devices are often removed and replaced in a secondary operation, thus delaying chemotherapy and prolonging prognosis. We present our protocol for device salvage, on which limited literature is available.

MATERIALS AND METHODS

Between 2007 and 2013, we treated 17 patients under local anesthesia (12 venous access ports, 3 pacemakers, 2 subcutaneous neural stimulators), according to the following protocol:

- Primary cases (n=14): capsulectomy, irrigation with n-acetylcysteine - to disrupt the bacterial biofilm - and coverage with random (n=10) or freestyle perforator (n=4) flap.
- Recurrent cases/thin patients (n=2): pocket change (submuscular if inadequate soft tissue coverage).
- Gross infection, (n=1): immediate device replacement.

Most patients (14) were operated within 7 days. Mean follow-up was 19 months (range 6-50).

RESULTS

One infected pacemaker was removed and immediately replaced. All other devices (16/17) were saved and all patients healed uneventfully within 15 days. We had one recurrent venous device exposure after 18 months, successfully treated with subpectoral placement. Submuscular placement caused early post-operative discomfort, which resolved spontaneously. Chemotherapy was always restarted as scheduled (7-21 days), and electrical devices remained functional along the whole treatment.

CONCLUSION

This protocol allows -with a straightforward operation and simple measures- to salvage exposed devices even several days after exposure. Submuscular placement or removal and immediate replacement are indicated only for selected cases.

Plastic surgeons play a crucial role in improving prognosis of these patients: salvage or immediate replacement of implantable devices avoids the need for secondary repositioning, thus preventing deleterious delays in treatment and unnecessary morbidity.

12.06

NO DIFFERENCE IN RADIATION DOSES TO ORGANS AT RISK IN POSTMASTECTOMY RADIOTHERAPY WITH OR WITHOUT IMMEDIATE BREAST RECONSTRUCTION

Marie WICKMAN-CHANTEREAU, Dmytro UNUKOVYCH, Kerstin SANDELIN, Giovanna GAGLIARDI, Annelie LILJEGREN, Stockholm, Sweden

INTRODUCTION

It has been shown that radiotherapy may adversely affect the results of implant-based breast reconstruction. Conversely, the significance of breast implants in radiotherapy planning and delivery has not been studied in detail.

The aim of this study was to quantify the radiation doses to organs at risk (OARs) and the clinical target volume (CTV) in patients with or without breast implants.

PATIENTS AND METHODS

All consecutive breast cancer patients operated with mastectomy between 2009 and 2011 and completing a full course of postmastectomy radiotherapy (PMRT) were eligible. Dose statistics for OARs (i.e. lung and heart) and CTV were retrieved. Ipsilateral lung dosimetry was assessed using minimum, maximum and mean dose to the lung, as well as V20Gy. Heart variables included minimum, maximum, mean dose and V25Gy. All patients identified in the radiotherapy planning system (n=818) were further stratified for immediate breast reconstruction (IBR+, n=162) and no immediate breast reconstruction (IBR-, n=656).

RESULTS

No association between the outcome variables and potential confounders (breast reconstruction, side of PMRT, chest wall index) was found in the uni- and multivariate analyses. In the IBR+ subgroup, no correlation between the implant type and dosimetric characteristics of the OARs was revealed.

CTV definition in IBR+ always included implant that made dosimetric comparisons between the groups inaccurate, i.e. CTV was larger in IBR+ compared to IBR- for both CW (629.4 vs. 458.4 cm³, p<0.001) and CW+LN (1074.7 vs. 787.9 cm³, p<0.001) radiation plans. In the IBR+ subgroup analysis no correlation between the type of implants and the three outcome dosimetric variables was found.

CONCLUSION

In the current study, the presence of breast implants during postmastectomy radiotherapy was not associated with increased doses to ipsilateral lung and heart.

14.00-15.30 SCIENTIFIC SESSION, No. 5 HAND/NERVE

Session Chairpersons:

Esther VÖGELIN, Bern, Switzerland

A. Lee DELLON, Towson, USA

14.00 NEW SURGICAL TREATMENT FOR THE TRAUMATIC MALLET FINGER: THE DEEPI THELIALIZED SKIN FLAP

Alexandru GEORGESCU, Irina CAPOTA, Eleana MATEI, Actavian ALARIU, Cluj Napoca, Romania

AIM

Mallet finger deformity is one of the most frequent pathological entities after extensor tendons injuries, which appears as result of the disruption of extensor tendon continuity over the distal interphalangeal joint. Despite the fact that a lot of methods were used in managing this deformity, the treatment of mallet finger is still a much debated subject.

MATERIAL AND METHOD

We present a new surgical method by using a dorsal de-epidermised flap reinserted through the bone. The procedure consists in performing an intra-dermal incision that delimitates a flap on the distal 2/3 of the dorsal aspect of the second phalanx, the distal end of the flap coinciding to the DIP joint; the width of the flap is of 3-5mm. The flap is de-epidermised and raised superficial to the tendon. At the level of extensor insertion a hole of 1-1.5mm is done. A 4/0 steel thread is passed through the distal end of the flap and is then passed through the intra-osseous hole and knotted palmarly in a tie-over manner. The extensor tendon is sutured with 4/0 absorbable threads to the flap. The skin is closed over the flap. Postoperatively we immobilise only the DIP joint. The Kirschner wire is removed after three weeks, the steel thread after four weeks and the immobilization after five weeks. We used this method in 97 cases.

RESULTS

The patients regain 95-100% of DIP stability and mobility, with an extension deficit of 0 to 10 degrees.

CONCLUSION

This simple and effective method avoids a prolonged and uncertain immobilization and has a significantly high percent of success. The method uses local resources and avoids the rejection phenomenon related to allograft materials. The distal trans-osseous reinsertion and centro-medular wiring are important technical adjuvant and improve the final results.

14.12 SKIN INVOLVEMENT IN DUPUYTREN'S DISEASE: CLINICAL AND HISTOPATHOLOGICAL PROSPECTIVE EVALUATION.

Andrea FIGUS, Ryckie G WADE, Lazlo IGALI, Norwich, United Kingdom

BACKGROUND

Dermofasciectomy is associated with the lowest recurrence rate in Dupuytren's disease. It is indicated for recurrent disease or clinically involved palmar skin. Clinical assessment for skin involvement remains debatable and its histological correlation uncertain. We prospectively investigated on the presence of dermal fibromatosis in patients undergoing fasciectomy and dermofasciectomy for Dupuytren's Disease.

METHODS

Over 3 years, biopsies of palmar skin overlying a cord or nodule in those consecutive patients undergoing surgery for single digit flexor contracture due to Dupuytren's disease (44 fasciectomies and 59 dermofasciectomies), were histologically analysed for the presence of dermal fibromatosis. Data were compared with Chi Square tests. Odds ratios (OR) with 95% confidence intervals were generated.

RESULTS

We found dermal fibromatosis in the skin of 22 patients who underwent fasciectomy (50%) and in 41 patients who underwent dermofasciectomy (69.5%). Dermal fibromatosis was found more common with greater degrees of deformity and outcomes of dermofasciectomy demonstrated a greater improvement in range of movement (53.1 vs. 92.8 degrees, $p < 0.001$). Predictive factors of dermal fibromatosis included manual workers (OR 2.12 [1.44, 3.11], $p < 0.001$) and presence of palpable palmar nodules (OR 1.73 [1.24, 2.40], $p = 0.001$).

CONCLUSIONS

This is the first study comparing the clinical and histopathological features of skin involvement in Dupuytren's disease. Myofibroblasts dermal fibromatosis is significantly higher compared to clinical assessment of skin involvement in Dupuytren's disease and may play a greater role than previously thought. Dermal fibromatosis may be a significant factor in relation to a higher risk of recurrence.

14.24

BIONIC RECONSTRUCTION RESTORES HAND FUNCTION AFTER ELECTIVE AMPUTATION IN PATIENTS WITH SEVERE BRACHIAL PLEXUS LESIONS

Oscar C ASZMANN, Aidan ROCHE, Stefan SALMINGER, Malvina HERZEG, Christian HOFER, Vienna, Austria

INTRODUCTION

Brachial plexus injuries or severe tissue damage of the upper extremity may permanently impair hand function. Reconstruction of this loss with existing surgical means currently leads to suboptimal results. Using an innovative approach of offering elective amputation with a combination of bionic and novel reconstructive means provides improved outcomes.

MATERIAL AND METHODS

Between June 2009 and March 2013 three patients with severe injuries of the brachial plexus underwent elective amputation and bionic reconstruction. The ethics governing elective amputation of a biologically intact, but non-functioning limb, were thoroughly addressed prior to surgery. The surgical goal was to improve the man-machine interface via selective nerve and free functional muscle transfers, which would act as new and intuitive bio-amplifiers. Upper limb outcome measures were compared with seven healthy control participants to quantitatively assess rehabilitation goals.

RESULTS

All patients were fitted with a bionic hand and regained excellent function after final fitting. The Action Research Arm Test revealed that hand function improved from between 0 to 20 out of 57 to over 55 out of 57 points after final fitting. There was also a remarkable improvement in the Disabilities of Arm, Shoulder and Hand score and the Southampton Hand Assessment Procedure.

CONCLUSION

After elective amputation, bionic reconstruction established intuitive electromyographic signals, enabling patients to control a highly complex mechatronic device through advanced signal processing. This approach provides a novel avenue for dramatic functional upper limb improvement for patients with severe brachial plexus or traumatic soft tissue injuries.

14.36 THE USE OF ADIPOSE-DERIVED REGENERATIVE CELLS (ADRCs) IN THE TREATMENT OF SCLERODERMA OF THE HANDS: A PROSPECTIVE TRIAL

Guy MAGALON, Pierre NGUYEN, Aurelie DAUMAS, Florence SABATIER, Brigitte GRANEL, Marseille, France

INTRODUCTION

Hand disease in Systemic Sclerosis can be complicated by acrocyanosis, digital ischemia, ulcers and digital retraction which lead to functional disability, pain, and a significant impairment of the quality of life. Currents treatments are modestly effective. The safety, feasibility, functional and trophic effects of the injection of stromal vascular fraction (SVF) from adipose tissue in the fingers of patients with SSc were evaluated.

PATIENTS AND METHODS

12 patients with scleroderma were included, after consent and verification of the inclusion / non-inclusion criteria. All had a Cochin hand function disability Scale > 20/90.

Fat were harvested from the abdominal region by liposuction and immediately supported by the cell treatment unit. 5ml of FVS were extracted with the Celution® 800/CRS (Cytori Therapeutics, Inc, USA) medical device. 1ml was reinjected in each fingers under neuroleptic analgesia, using a 25-gauge cannula (0.5mm). The injection was performed 2 hours after harvesting and quantification of the cell product. The average dose of cells injected per finger was 3.7 10⁶. Clinical monitoring was programmed at one, seven, twenty-one days, two and six months.

RESULTS

Mean age was 54.5±10.3 years, 12 had Raynaud's syndrome which appeared at 14.3±7.7 years (range 5-34) before. Duration of scleroderma was 9.9±7 years (range 2-24). Rodnan score was 14±9.7 (range 3-32). No serious adverse events were reported. Results from several tests showed a significant improvement ($p < 0,001$): Cochin hand functional disability scale; pain in hands evaluated with the visual analogic pain scale. Raynaud's syndrome; SSc-HAQ. Hand mobility test (HAMIS) and Rodnan score focused on hand were improved.

CONCLUSION

This study demonstrates the feasibility and tolerability of injecting autologous FVS in the fingers. An improvement was observed in hand functions, intensity of pain, Raynaud's syndrome and quality of life.

Roger KHOURI Jr., Eufemiano CARDOSO, Roger KHOURI, Miami, FL, USA

There has been a resurgence of interest in fat grafting. Its applications to the hand have not been fully explored. We report our 7 years experience with fat grafting the hand for multiple indications.

We performed 258 fat grafting procedures to 239 hands on 211 patients. Indications were: Dupuytren release, scar contracture release, padding and correction of contour defects, Rheumatoid arthritis, scleroderma, neuromas, tenolysis adjuncts, and cosmetic rejuvenation. We separate by gravity sedimentation manually harvested liposuctioned fat and we re-inject it with a fine cannula. We graft around 10 ml/digital ray, create some tumescence with the dilute fat slurry and with multiple punctures of an 18G hypodermic needle percutaneously release contractures placed under tension and create a recipient scaffold. The hand is immobilized for 5-7 days then the patient returns to gentle activities as tolerated.

The Percutaneous Aponeurotomy and LipoFilling (PALF) of the Dupuytren contractures yielded 90% and 75% correction at MPJ and PIPJ with a recurrence comparable to the open fasciectomy procedures and the advantage of being incisionless, quick recovery and minimal complications. Expanding the procedure to scar contractures we successfully released contractures that would have required flap transfer without any incision and the morbidity of flap surgery. Fat grafts also provided excellent soft tissue correction and reversed 85% of neuromas and seemed to accelerate the progress of nerve regeneration. Percutaneous tenolysis with fat of extensor tendons yielded a 75% improvement in ROM, while the tenolysis of flexors was not as successful. Fat grafts softened the scleroderma fibrosis and intra-articular injections reduced the inflammation of RA. All patients treated for cosmetic rejuvenation were highly satisfied.

Fat grafting is a useful adjunct to many hand surgery procedures and also provides an incisionless minimally invasive, appealing alternative to many hand ailments. Complications are minimal and patients are highly satisfied.

15.00 THE NECKTIE LASSO: AN ORIGINAL DYNAMIC TECHNIQUE FOR THE SIMULTANEOUS TREATMENT OF WARTENBERG'S SIGN AND CLAWHAND DEFORMITIES IN THE ULNAR NERVE PALSY

Amin BELMAHI, Rabat, Marocco

INTRODUCTION/PURPOSE

The necktie lasso is a new dynamic technique allowing with efficiency and easiness the simultaneous treatment of both wartenberg's sign and claw deformity of the fifth and fourth digits in the hand suffering from ulnar nerve palsy.

MATERIAL AND METHODS

From 1998 to 2013, 30 patients aged between 18 and 42 years old with a long standing post traumatic low ulnar nerve palsy have been treated according to this technique by the author. All these patients had a supple claw deformity of the fourth and fifth digits and a wartenberg's sign. In the necktie lasso, the flexor sublimis of the fourth digit is divided longitudinally into two equal slips up to the proximal part of the palm; the radial slip is used as a classical lasso procedure to treat the claw deformity of the fourth digit; the ulnar slip is wound around the base of the fifth digit, like a necktie, being medial to its radial pedicle, dorsal and superficial to its extensor apparatus, then lateral to its ulnar pedicle; it is then recuperated in the palm and sutured to itself. The tension is good when the fifth digit is completely adducted with its metacarpophalangeal joint flexed at 20°.

RESULTS

In all these patients:-the wartenberg's sign was treated with an active adduction appearing at the start of digital flexion-the claw deformity of the fifth and fourth digits was corrected with an active flexion of their proximal phalanx. No complications were reported in this series. With a mean follow-up of 8 years, there was no recurrence of these deformities.

CONCLUSIONS

Following ulnar nerve palsy, when there is a wartenberg's sign and a claw deformity of the fifth and fourth digits, this technique seems very appropriate for hand rehabilitation.

15.08 SITTING IS A PAIN IN THE ISCHIA

A. Lee DELLON, Towson, Maryland, USA

PURPOSE

The ischial tuberosity, referred to as the "sit bone" by patients with pain when sitting, is surrounded by critical nerves. Depending upon how a person places weight on the ischial tuberosity, symptoms can vary from pudendal nerve symptoms, to sciatica, or to posterior femoral cutaneous nerve (PFCN) symptoms. This research relates, for the first time, the involvement of the PFCN, including its perineal and inferior cluneal branches to the symptom of "Pain in the ISCHIA". The outcome of resecting this nerve is presented.

METHODS & MATERIALS

From 2010 through August of 2013, 14 patients had surgery on the PFCN. Twelve were women. Mean age of the 14 patients was 54.6 years (range 30 to 74 years). Each patient had pain with sitting and symptoms involving the buttock, posterior thigh and perineum. Patients spent much of the day standing or lying down. Mean symptom duration was 63.5 months (range 12 to 180 months). Mechanism of injury was a hamstring tear in 7 of the 14, usually related to an athletic event or a fall. Previous misdiagnosis: Nine had transgluteal pudendal nerve decompression, two had pyrimiformis excision and sciatic neurolysis. Each of the 14 patients in this series had a resection of the PFCN through an incision in the gluteal crease.

RESULTS

Of the 14 patients, at a mean of 19.4 months post-operatively, there were 6 excellent, 5 good, 2 fair, and 1 poor result: 79% good to excellent results (pain relief, improvement in sitting). Two fair results were in the first patients, the only two in whom the entire PFCN was not removed. There were no surgical complications.

CONCLUSION

Ischial pain can be due to injury to PFCN, a previously unreported etiology. Good to excellent results can be expected in 79% of carefully selected patients.

15.20 MANAGEMENT OF NERVE PAIN USING NEUROMODULATION TECHNIQUE IN OUT PATIENT SETTING AT ST ANDREW'S CENTRE FOR PLASTIC SURGERY

Aftab SIDDIQUI, Jenny POEL, Lorraine HARE, Manu SOOD, Chelmsford, United Kingdom

INTRODUCTION

Any trauma to the hand including iatrogenic, has the potential to result in nerve injuries, which can result in painful nerves and neuromas. These are a difficult group of conditions to treat and manage. Surgical and non-operative techniques have been described such as nerve relocations, guanethidine blocks, management with medications and each has its own efficacy and complications. We have used external Neuromodulation for management of nerve pain in out patient settings and present our series of 102 patients.

MATERIAL/METHODS

A retrospective study of case notes done and results have been analyzed. Outcome measure recorded as Pain free, pain relief lasting days to weeks, pain relief lasting few mins to few hours and no response.

RESULTS

The use of Neuromodulation has resulted in significant reduction in pain in our patients. 30.3% (n=31) patients were completely pain free or. About 22 patients (21.5%) had pain relief lasting few days to weeks and these patients benefitted by either renting the machine or purchasing it for self administration. 23.5% patients had pain relieved lasting few minutes to hours and were classed as poor responders. In our study 25 patients (24.5%) showed no response to neuromodulator, and further treatment was abandoned in these group.

CONCLUSIONS

It is a useful non-invasive technique for management of nerve pain and can be used in out patients setting avoiding further operation in in significant number of painful neuromas and nerve pains. About 50% of our patients in the study were treated successfully with Neuromodulation.

16.00

AAPS BEST PAPER 2013**INTRODUCTION TO AAPS BEST PAPER**

Stephan ARIYAN, AAPS-President, New Haven, CT, USA

EFFECT OF BURN INJURY ON MESENCHYMAL STEM CELLS: MECHANISM AND IMPROVED IMAGING AND TREATMENT OF HETEROTOPIC OSSIFICATION

Benjamin LEVI, Jonathan R. PETERSON, Oluwatobi EBODA, Shailesh AGARWAL, Steven R. BUCHMAN, Paul S. CEDERNA, Chuanwu XI, Michael D. MORRIS, David N. HERNDON, Wenzhong XIAO, Ronald G. TOMPKINS, Paul H. KREBSBACH, Stewart C. WANG, Ann Arbor, Michigan, USA

Heterotopic ossification (HO), or the abnormal development of bone in soft tissue locations, is a clinically devastating sequela of burn injury that leads to restricted joint mobility, and pain. An accepted mechanism for HO proposes that stem cell-like progenitors become aberrantly activated to form bone. We hypothesize that the inflammatory response to burn injury enhances the osteogenic capacity of human and mouse mesenchymal stem cells (MSCs). Furthermore, we hypothesize that this osteogenic potential can be mitigated through Adenosine triphosphate (ATP) inhibition at the burn site as well as systemic inhibition of Smad 1/5 mediated Bone Morphogenetic Protein (BMP) inhibition.

Human MSCs cells were harvested from adipose tissue of burn patients and age and sex matched controls. Mouse MSCs (adipose derived) were harvested 2, 6, and 24 hours after burn injury, burn injury + ATP inhibitor application or non-burn control (n=4 per group). Subsequently, osteogenic capacity was assessed by gene expression (qRT PCR), protein expression (western blot analysis) and standard in vitro osteogenic differentiation assays. In vivo heterotopic bone formation was assessed using an Achilles tenotomy model. Osteogenic signaling was assessed in vivo by immunohistochemistry and de novo bone formation was analyzed by novel Raman spectroscopy, microCT, near infra-red spectroscopy and histology.

Human MSCs demonstrated increased osteogenic gene expression of early and late osteogenic markers as well as BMP-2 ligand after burn injury ($p < 0.05$). Similarly, burn injury resulted in a striking increase in osteogenic gene expression and osteogenic differentiation among mouse MSCs at all time points which was mitigated by ATP hydrolysis at the burn site. In both human and mouse cell lines, increased osteogenic differentiation correlated with increased BMP-2 signaling as demonstrated by Western Blot analysis. Burn injury enhanced bone mineral content and bone mineral density by histology, microCT, and Raman Spectroscopy at all time points analyzed. This HO formation was blunted in mice after ATP inhibition at the burn site or after systemic Smad 1/5 mediated BMP-2 signaling.

We demonstrate that MSCs exhibit enhanced osteogenic capacity after burn injury. The mechanism appears to be due to up-regulation of Smad 1/5 mediated BMP-2 signaling and this can be mitigated by blocking inflammation at the burn site both

in vitro and in vivo. We establish the role for burn injury in modulating heterotopic bone formation and demonstrate that manipulation of inflammation at the burn site may have therapeutic utility in treatment regimens designed to prevent and remediate HO.

16.15-17.30 SCIENTIFIC SESSION, No. 6 CLINICAL GENERAL

Session Chairpersons:

Mustapha HAMDI, Brussels, Belgium

Othon PAPADOPOULOS, Athens, Greece

16.15 HAS PROPRANOLOL ERADICATED THE NEED FOR SURGERY IN THE MANAGEMENT OF INFANTILE HEMANGIOMA?

Julien COULIE, Maude COYETTE, Stéphane MONIOTTE, Anne-Christine BATAILLE, Francis ZECH, Laurence M. BOON, Brussels, Belgium

PURPOSE

To assess the impact of propranolol as first-line treatment of infantile hemangioma (IH) on the need for surgery in the management of IH.

METHODS

Retrospective study of 421 patients, with infantile hemangioma or its sequelae, referred to the multidisciplinary Center for Vascular anomalies between 2006 and 2012. Clinical data including age at first consultation and at treatment initiation, sex, location, size, number, aspect, complication, and type of treatment of IH applied. Photographs taken before, during and after management were analysed. The study was accepted by the local ethics committee. Statistical analysis were conducted considering each tumor independently taking into account the correlated data ($\rho=0,28$). The population was stratified according to age, and subsequently according to age and date of first consultation.

RESULTS

A total of 626 IH were reviewed. 114 patients had more than one IH (27, 08%). The mean age of patients was 16 months. 240 patients were treated (57,01%) using corticoids (n=55), laser (n=35), propranolol (n=87) and/or surgery (n=126). Propranolol was effective in all but 2 infants with infantile hemangioma. Six patients (7%) initially treated with propranolol, still necessitated surgical correction of sequelae, in contrast to 21 (38%) initially treated with corticosteroids, and 85 (22%) with no medical treatment. Surgical correction of sequelae, mainly resection of fibrofatty residuum or lag skin (n=37), was indicated in 7% of these propranolol-treated-IH (n=6/87) in contrast to 26% (n=31/120) of patients not initially treated with propranolol. With our stratified population, statistical analysis did not demonstrate any significant influence of propranolol on the number of operated patients (P-Value > 0,05).

CONCLUSION

Surgical correction remains an important tool for the management of infantile hemangioma, and its complications and sequelae.

16.27 SIROLIMUS: A NOVEL TREATMENT FOR REFRACTORY-TO-STANDARD-CARE VMS.

Laurence M. BOON, Jeniffer HAMMER, Emmanuel SERONT, Sophie DUPONT, Frank HAMMER, Philippe CLAPUYT, Miikka VIKKULA, Brussels, Belgium

PURPOSE

To assess the efficacy of sirolimus, an mTor inhibitor, on patients affected with difficult-to-treat VM, which can no more be helped with conventional management.

METHODS

Five patients with refractory-to-standard-care VM have so far been enrolled in our clinical trial. Patients 1 and 2 had extensive VM of the lower extremity extending into the abdomen and the viscera, and the pelvis, right inguinal canal and scrotum, respectively. Patient 3 has multiple sporadic intramuscular VMS, patient 4 an intramuscular ankle VM and patient 5 an extensive combined capillaro-lymphaticovenous malformation involving the right flank, back and buttock. Clinical symptoms included: chronic daily debilitating pain (n=5), functional impairment (n=5), daily gastrointestinal bleeding (n=1), and chronic ulceration with oozing and bleeding (n=1), despite several sessions of sclerotherapies and/or surgery. Informed consent was obtained and approved by our ethical committee. The trial is registered under the EudraCT number 2012-001262-15 and protocol ID VASCA-LM at clinicaltrials.gov (NCT01811667). Clinical, radiological and biological evaluations were done before and at each consultation after the initiation of the therapy. A global self-evaluation percentage of increase/decrease in quality of life (including social and physical function, vitality, and pain) was recorded at each follow-up. Side-effects of the medication were recorded.

RESULTS

All five patients experienced almost complete relief of pain and symptoms, improved functional restraint and self-perceived quality of life under sirolimus medication. Side effects were mild migraine (n=2), diarrhea (n=2), fatigue (n=2) and canker sore (n=1).

CONCLUSION

Early results from this clinical trial suggest that sirolimus alleviates signs and symptoms of refractory-to-standard-care VMS. This is the first report of an effective molecular therapy for VM. However, as sirolimus is likely a life-long treatment with side effects, it should not be considered as a treatment for small, localized, painless, non-bleeding VM that are amenable to standard care.

16.35 THE SENTINEL LYMPH NODE BIOPSY IN THIN MELANOMA: CORROBORATING EVIDENCE FOR THE NEW GUIDELINES OF STAGING AND TREATMENT OF MELANOMA

Georgios KECHAGIAS, Aristeia MARRA, Eugenia Jenny KYRIOPOULOS, Athanasios KARONIDIS, Dimosthenis TSOUTSOS, Athens, Greece

INTRODUCTION-PURPOSE

Sentinel Lymph Node Biopsy (SLNB) in the therapeutic approach of primary melanoma is considered an important tool of staging, although the impact on overall survival still remains unclear. The guidelines in regard to depth, taking in mind where SLNB staging benefits do not outweigh the risks of the procedure, are constantly reviewed and modified. We evaluate the role of SLNB in thin melanomas.

MATERIAL AND METHODS

From 2010 to 2013, 78 patients with thin melanoma stage IA (T1a, N0, M0 with presence of adverse/high risk features) and IB (T1b, N0, M0) (AJCC) were included and divided in 2 groups:

- Group A: 57 patients with Breslow ≤ 0.75 mm
- Group B: 21 patients with Breslow 0.76-1.0mm

All patients underwent excision of the primary site and subsequently wide local excision and SLNB. We analyzed the histopathology report results of SLNB procedures in both groups.

RESULTS

There was no positive SLN in any patient of group A (0%). Two patients from group B with presence of ulceration and/or mitosis had positive SLN (9.5%) and underwent completion lymph node dissection (CLND). In 1 patient, CLND revealed another positive lymph node. The total percentage of positive SLN from both groups was 2.6%. In regard of SLNB complications, only one patient developed small seroma formation in the inguinal area, which was treated with aspiration.

CONCLUSION

Our findings justify SLNB procedure in thin melanomas of 0.76-1.0mm with mitosis and/or ulceration or presence of adverse or high-risk features. Conventional risk factors for a positive SLN, such as ulceration, high mitotic rate and lymphovascular invasion are very uncommon in melanomas $\leq 0,75$ mm, although when present, SLNB may be considered on an individual basis and therefore, comparable studies should be evaluated.

16.43 POSITIVE SENTINEL NODE BIOPSY IN MALIGNANT MELANOMA: IS ALWAYS COMPLETION LYMPH NODE DISSECTION WORTHWHILE?

Edoardo DALLA POZZA, Federica BOSCO, Glenda CAPUTO, Enrico VIGATO, Maurizio GOVERNA, Verona, Italy

INTRODUCTION

International guidelines for patients with malignant melanoma and a positive sentinel node biopsy (SNB) suggest a complete lymph node dissection (CLND). Less than 20% of CLNDs show additional nodal metastases and its therapeutic benefit is still discussed.

This retrospective study analyzed the influence of CLND in SNB positive patients in terms of recurrence (DFS) and mortality (OS).

MATERIAL AND METHODS

From January 2000 to June 2013 we performed 758 SNB, with a positive result in 105 cases (13.85%).

Patients were divided into two groups according to the nodal tumour burden: Group A (Micrometastatic $\leq 0.2\text{mm}$) and Group B ("Macro"metastatic $> 0.2\text{mm}$). CLND was always performed when feasible.

Chi-square test, hazard ratio and Kaplan-Meier survival curves were used to compare the incidence of recurrent/metastatic disease and mortality.

RESULTS

SNB resulted positive for micrometastasis in 55/105 (52.4%) patients (Group A) and "macro"metastasis in 50/105 (47.6%) (Group B); CLND was performed in 81/105 pts.

Group B patients compared with group A have higher risk of metastases and death independent of CLND performance (HR 4.27, 95%C.I. 7.99 and 4.76, 95%C.I. 2.17-10.4 respectively, $p<0.001$). Also, independent of additional metastases in CLND, group B has a shorter mean OS and DFS comparing the Kaplan-Meier survival analysis ($p<0.05$).

CLND was not performed in 24/105 (22.9%) patients. The comparison of these patients with those subjected to a CLND showed no relevant difference in DFS ($p=0.6$) and OS ($p=0.45$).

CONCLUSIONS

Our data, although still limited, suggest there is not a significant increase in OS and DFS after CLND performance, even if we found a relevant difference in mortality and recurrence between patients with metastatic versus non-metastatic CLND ($p<0.05$).

SNB tumor burden seems to be the most important prognostic value in OS and DFS and Breslow index appears to have no further significance as a prognostic index in SNB positive patients.

**16.55 A NEW VASCULARIZED CERVICAL LYMPH NODE
TRANSPLANTATION MODEL AN ANATOMIC STUDY IN
RATS**

Uygur SAFAK, Can OZTURK, Mehmet BOZKURT, Maria MADAJKA, Maria SIEMIONOW, Cleveland, USA

INTRODUCTION

Vascularized lymph node transfer is of high interest for the treatment of lymphedema. Currently, there are few experimental small animal models of vascularized lymph node transplantation. In this article, our aim was to describe a new vascularized cervical lymph node transplantation model in rats.

MATERIALS AND METHODS

Ten male Sprague-Dawley rats weighing 200 to 250 g were used in this study. The anatomic features of the neck lymph nodes in rats were explored. Anatomic neck dissections were performed, and lymphnode flaps were harvested. The common carotid artery and the jugular vein were used as the vascular pedicles of the lymph node flap. Methylene blue dye was injected into the arterial pedicle. Lymph nodes were identified, and their structure was confirmed by histological evaluation. Laser-assisted indocyaninegreen angiography was used to confirm perfusion of the lymph node flap.

RESULTS

An adequate perfusion was observed in the lymph node flap. The dye disseminated evenly within the lymph nodes, indicating that the flap had a well-established vascular network and an adequate blood supply. Macroscopically, perfusion of 5 to 6 lymph nodes was observed. Histological examination of tissue samples confirmed well-defined lymph nodes. After indocyaninegreen administration, fluorescence was observed throughout the lymph node flap and within the venous pedicle of the flap.

CONCLUSIONS

To the best of our knowledge, this is the first report describing vascularized lymph node flap in the head and neck region of a rat. Our lymphnode flap preparation technique confirmed the presence of 5 to 6 lymph nodes within the flap. The presented vascularized lymph node flap can be applied to transplantation studies, lymphedema studies, and to studies on immunological mechanism of tolerance and rejection.

17.03 DESIRE FOR BODY CONTOURING SURGERY AFTER BARIATRIC SURGERY: DO BODY MASS INDEX AND WEIGHT LOSS MATTER?

Salvatore GIORDANO, Mikael VICTORZON, Erkki SUOMINEN, Turku, Finland

PURPOSE

There is disparity between the number of postbariatric surgery subjects who desire body contouring and those who receive it due to lack of resources or insurance criteria.

METHODS

The authors evaluate the desire for body contouring after bariatric surgery and its relationship with demographic patient characteristics.

Three hundred sixty patients who had undergone bariatric surgery procedures >1 year previously completed a questionnaire designed by the surgical team to analyze each patient's desire for body contouring by area (face, upper arm, upper back, chin/neck, chest/breast, waist/abdomen, lower back, rear/buttock), scored from 0 to 3 (do not want, want somewhat, want, want a great deal). Data were compared with patient characteristics, postoperative body mass index (BMI), amount of weight loss, and BMI difference (Δ BMI).

RESULTS

Most patients desired body contouring surgery, with high or very high desire for waist/abdomen (62.2%), upper arm (37.6%), chest/breast (28.3%), and rear/buttock (35.6%) contouring. Many patients (36.4%) cited "very high" expectations for how body contouring might change their appearance. Patients >50 years old and >3 years postsurgery had a significantly lower desire. Patients with a Δ BMI>10 and with a weight loss >20 kg showed a significantly stronger overall desire for body contouring compared with other groups.

CONCLUSIONS

Most patients desire body contouring surgery after bariatric surgery, and our multivariate analysis showed a significant positive association between female sex, younger age, amount of weight loss, and Δ BMI with desire for body contouring.

17.11 IS HIGH SUPERIOR TENSION TECHNIQUE AN EQUIVALENT SUBSTITUTE TO PROGRESSIVE TENSION SUTURES IN POSTBARIATRIC ABDOMINOPLASTY? A COMPARISON PROSPECTIVE STUDY.

Filippo BORIANI, Andrea MARGARA, Donatella GRANCHI, Nicola BALDINI, Bologna, Italy

BACKGROUND

The addition of Progressive Tension Sutures (PTS) to the abdominoplasty technique is advocated to reduce the risk of several complications. High superior tension (HST) abdominoplasty is another technique aimed at reducing tension at the prepubic suture line and improving cosmesis of the umbilical area.

METHODS

A cohort of postobese patients undergoing abdominoplasty, treated with the progressive tension sutures in association with the high superior tension technique was followed up and compared to a hostile cohort of patients who underwent a simple HST abdominoplasty. Several variables including rate of complications and patients' satisfaction were explored in order to find any possible benefit deriving from the combination of PTS and HST techniques in the abdominoplasty.

RESULTS

In total 90 patients were included in the study, of whom 34 in group A (PTS and HST) and 56 in group B (HST only). No statistically significant difference was found between the two groups in terms of duration of the procedure, hospitalization time, rate of complications, drained volume and patients' or doctor's satisfaction.

CONCLUSIONS

no beneficial effect appears to derive from the PTS technique in the massive weight loss patients undergoing abdominoplasty, as long as the high superior tension technique is performed as an adjunct to the traditional method of abdominoplasty.

SATURDAY, MAY 31, 2014

08.30-10.30 SCIENTIFIC SESSION, No. 7 BREAST RECONSTRUCTION

Session Chairpersons:

Marie WICKMAN-CHANTEREAU, Stockholm, SWEDEN

Hisham FANSA, Munich, GERMANY

08.30 BREAST RECONSTRUCTION OUTCOMES FOLLOWING NIPPLE-SPARING MASTECTOMY

Amy COLWELL, Alex LIN, Eric LIAO, Jonathan WINOGRAD, William AUSTEN, Boston, MA, USA

INTRODUCTION

Nipple-sparing mastectomy (NSM) is increasingly used for treatment and prevention of breast cancer. Little data exists on risk factors for complications and reconstruction outcomes.

MATERIAL AND METHODS

Single institution multi-surgeon retrospective review of NSM with immediate breast reconstructions was performed from June 2007 to June 2013.

RESULTS

Four hundred twenty-two patients underwent 752 NSM reconstructions for breast cancer (48.14%) or risk reduction (51.86%). The average BMI was 23.9 and 28 (6.64%) patients were active smokers. Mastectomies were performed utilizing inferolateral inframammary fold (IMF) (n=477, 63.43%), periareolar (n=116, 15.43%), lateral radial (n=72, 9.57%), inferior radial (n=22, 2.93%), or pre-existing scar (n=65, 8.64%) incisions. All procedures were completed with direct-to-implant (63.03%), tissue expander-implant (34.71%), or autologous (2.26%) techniques using acellular dermal matrix (70.74%) or mesh (15.69%). 114 cases had preoperative or postmastectomy radiotherapy. Total complications included infection (3.06%), skin necrosis (4.52%), nipple necrosis (2.93%), seroma (1.99%) and hematoma (1.60%) leading to 10 (1.32%) explants.

Multivariate regression analysis showed BMI (OR=1.078), preoperative radiation (OR=3.596) and a periareolar incision (OR=3.682) were predictors of total complications. Increasing BMI was predictive of skin necrosis (OR=1.159) and preoperative radiation predicted nipple necrosis (OR=4.308). The IMF incision had fewer total complications (OR=0.489) and more single-stage reconstructions ($p<0.001$) while smokers and the inferior radial incision were associated with two-stage reconstructions ($p<0.05$). Six-year trends showed more IMF incisions and fewer periareolar incisions ($p<0.001$). A patient survey showed preference for the IMF incision. Subgroup analysis of 148 patients (181 cases) with prior breast surgery (PBS) showed no significant difference in total complication rates or nipple necrosis compared to patients without PBS ($p>0.2$ for each).

CONCLUSIONS

NSM with immediate reconstruction has a low number of complications and can be performed in patients with prior breast surgery. Smoking, BMI, preoperative radiation, and incision type predicted complications.

08.42

ONCOPLASTIC BREAST RECONSTRUCTION IN OBESE WOMEN IS SAFER THAN IMMEDIATE BREAST RECONSTRUCTION FOLLOWING TOTAL MASTECTOMY

Patrick GARVEY, Winnie TONG, Donald BAUMANN, Mark VILLA, Geoffrey ROBB, Houston, TX, USA

INTRODUCTION/PURPOSE

Obese patients experience high rates of complications after total mastectomy followed by immediate breast reconstruction (IBR) with either implants or autologous tissue. Segmental mastectomy with oncoplastic breast reconstruction (OBR) utilizing reduction mammoplasty techniques is an oncologically equivalent alternative to IBR. We hypothesized that obese patients would experience fewer complications after OBR than after IBR.

MATERIAL AND METHODS

We compared outcomes between OBR and IBR in obese patients (body mass index [BMI]>30 kg/m²) at a single center between 2005 and 2013. Patients were also sub-classified according to the World Health Organization (WHO) obesity classifications. The primary outcome measure was overall complications, sub-classified as major (requiring surgery) and minor (not requiring surgery). Logistic regression analysis identified associations among patient and reconstructive characteristics and clinical outcomes.

RESULTS

The analysis included 394 patients (161 OBR vs. 233 IBR patients) with 10.9 months mean follow-up. OBR patients were older (mean age=55 vs. 52 years, $p=0.005$), more obese (mean BMI=37 vs. 34 kg/m², $p<0.001$), had more medical comorbidities, and received less neoadjuvant chemotherapy (17% vs. 30%, $p<0.001$) than the IBR patients. The overall complication rate was significantly lower for the OBR group compared with the IBR group (31% vs. 41%, $p=0.04$). OBR experienced more minor complications associated with delayed wound healing (13.7% vs. 4.3%, $p=0.001$), whereas IBR required more additional surgeries, both to treat complications (27.0% vs. 1.9%, $p<0.001$) and for cosmetic revisions (33.5% vs. 0.6%, $p<0.001$). Complication rates were higher with higher WHO obesity classification for both types of reconstructions. Regression analysis found OBR to be associated with a significantly lower risk of complications (OR=0.64, $p=0.04$).

CONCLUSION

Oncoplastic breast reconstruction in obese patients appears to have the advantages of fewer complications and the need for fewer additional surgeries than immediate reconstruction following total mastectomy and may represent a safer reconstructive option for obese patients.

08.54 IS ONCE ENOUGH? ANTIBIOTIC PROPHYLAXIS IN IMPLANT BASED BREAST RECONSTRUCTION

Damir KOSUTIC, LLIyassu ISAH, CW FENN, RJ BRAMHALL, Sarah CLARK, Birmingham, United Kingdom

INTRODUCTION

Recent widespread hospitals policies towards limiting perioperative antibiotic prophylaxis has not been based on research conducted on plastic surgery patients undergoing breast reconstruction. An increased rate of implant removal and surgical site infections were noted in implant-based breast reconstruction patients. Aim of our study was to determine whether limitation of antibiotic prophylaxis to a single preoperative dose has increased the rate of reoperation and implant removal due to surgical site infection.

METHODS

A prospective study on patients undergoing implant based breast reconstruction compared infection rates in group who received preoperative dose and 3 or more postoperative doses of antibiotic prophylaxis with a group who received a single preoperative dose. Data on type of antibiotic, surgical site infection, implant removal, radiotherapy, smoking, comorbidities and costs were collected and analysed.

RESULTS

189 patients were included: 126 patients in Group I who received both preoperative and 3 or more doses of postoperative antibiotic prophylaxis and 63 patients in Group II who received a single preoperative dose. The overall rate of surgical site infections was 3.3% in Group I and 8.6% in Group II, which showed no statistically significant difference in terms of expected increase in infection rate ($p=0.163$). No difference in implant removal rate was found. Relative risk of developing postoperative infection was only 0.4x higher in a single preoperative dose Group I compared to Group II who received postoperative antibiotics. Smoking, radiotherapy and comorbidities did not have significant impact on implant removal rate.

CONCLUSION

Contrary to what recent studies have shown and what we expected, we found no significant difference in postoperative infections and rate of implant removal if postoperative antibiotic prophylaxis is not administered in implant based breast reconstruction. Withholding postoperative antibiotics is not associated with significant risk of reconstructive failure but can decrease overall costs of implant based breast reconstruction.

09.26

THE IMPACT OF DIEP FLAP HARVEST ON RECTUS MUSCLE FUNCTION: IMPORTANCE OF NERVE SUPPLY, VASCULARIZATION AND MUSCLE PRESERVATION.

Yamina DUPONT, Randy De BAERDEMAEKER, Gerd FABRÉ, Lloyd NANHEKHAN, Marc VANDEVOORT, Leuven, Belgium

INTRODUCTION

Over the years, considerable progress was made regarding donor site morbidity after breast reconstruction with autologous tissue. Using a deep inferior epigastric perforator (DIEP) flap, no muscle harvest is needed thereby decreasing donor site morbidity. Still, complications such as postoperative discomfort, spasm and occasionally abdominal bulging are witnessed after DIEP flap reconstruction. Therefore, additional factors may contribute to this donor site morbidity.

MATERIAL AND METHODS

Rectus abdominis muscle function was evaluated in 45 patients who underwent a breast reconstruction with a DIEP flap using 3 different surgical techniques. Electromyographic assessments of the bilateral musculus rectus abdominis were done preoperatively and 6 and 14 weeks postoperatively, to objectify the presence, pattern and evolution of muscle (dys)function. Operation notes were analyzed to evaluate whether type and number of perforating vessels, surgical technique and other variables are determinants of the extent of muscle dysfunction. A standardized questionnaire was used to assess subjective outcome.

RESULTS

Persistent signs of denervation 14 weeks postoperatively, documented in 31% of all patients, were observed more frequently in patients who underwent a "full longitudinal transection of the rectus muscle" (10/15; 67%) than in patients who were operated with a "minimal incision DIEP flap harvest technique"(1/13; 8%) or a "nerve sparing technique"(3/17; 18%). Of the 40 patients who responded to the questionnaire, 34 (85%) showed no impact on quality of life. Differences in outcome were not related to Body Mass Index (BMI), smoking, comorbidity, age or previous pregnancies.

CONCLUSION

Our data demonstrate that harvesting a DIEP flap with a full longitudinal transection of the rectus muscle is associated with a high incidence (67%) of persistent electromyographical signs of denervation. The "nerve sparing" and the "minimal incision harvest" techniques allow limiting surgical damage to the rectus abdominis muscle to an absolute minimum.

09.38

DOES POST-MASTECTOMY RADIOTHERAPY AFFECT THE OUTCOME OF IMMEDIATE AUTOLOGOUS DIEP BREAST RECONSTRUCTION? A REVIEW OF 156 FLAPS.

Rieka TAGHIZADEH, Margarita MOUSTAKI, Alessia LARDI, Paul ROBLIN, Jian FARHADI, London, United Kingdom

INTRODUCTION

The decision to perform immediate deep inferior epigastric perforator (DIEP) flap reconstruction in patients requiring post mastectomy radiation therapy (PMRT) is controversial and often influenced by the increased potential of complications including fat necrosis and volume loss. We assessed the outcome and complications of irradiated immediate DIEP reconstructed flaps in a two surgeon series in our department.

METHODS

Data collected prospectively was reviewed of patients with immediate DIEP reconstruction performed by the two senior authors over 24 months. Patients receiving previous radiation were excluded. Those included were divided into two groups - requiring or not requiring PMRT. Primary outcome measures were fat necrosis, surgery for removal of fat necrosis, volume loss requiring surgery and wound complications. All patients with clinical diagnosis of post radiation fat necrosis had an ultrasound scan for confirmation. Fisher's exact probability test was used. All patients had a minimum follow-up of 12 months following completion of radiotherapy.

RESULTS

111 patients were included (90 bilateral, 66 unilateral) with a total of 156 flaps. In 63/156 flaps (40.4%) the patients received PMRT. Demographics in both groups were similar. Outcomes in PMRT vs. no PMRT respectively were: fat necrosis 9.6% vs. 11.5%, $p=0.552$; surgery for removal of fat necrosis 5.76% vs. 7%, $p=0.808$; volume enhancement surgery 1.28 % vs. 5.7%, $p=0.201$; minor wound healing delay 3.2% vs. 7%, $p=0.433$; major wound healing delay 2.5% vs. 5.7%, $p=0.558$.

CONCLUSION

Despite series reporting the deleterious effects of radiotherapy in free flaps (late complications as high as 87%), we found no statistically significant relationship between PMRT and increased early or late complications in DIEP flaps. Our department offers immediate breast reconstruction with acceptance of the risk/ benefit profile. We do not feel that post mastectomy radiotherapy precludes the decision for immediate free flap breast reconstruction.

09.46

TAMOXIFEN (SELECTIVE ESTROGEN-RECEPTOR MODULATORS) AND AROMATASE INHIBITORS AS POTENTIAL PERIOPERATIVE THROMBOTIC RISK FACTORS IN FREE FLAP BREAST RECONSTRUCTION

Michael N MIRZABEIGI, Stephen KOVACH, Liza WU, Joseph SERLETTI, Suhail KANCHWALA, Philadelphia, USA

PURPOSE

Given the theoretical concern for increased microvascular thromboses, recently published level III data suggests that preoperative Tamoxifen usage nearly doubles flap-related complications. Subsequent to this data, the evidence-based proposal has been to hold Tamoxifen for at least 28 days prior to reconstruction. The purpose of this study is to two-fold 1) further evaluate Tamoxifen as a potential thrombotic risk factor 2) evaluate aromatase inhibitors (AIs) as a potential novel risk factor.

METHODS

Patients were identified via a prospectively maintained database of abdominally-based free flaps performed from January 2008 - July 2012. Preoperative records were utilized to identify patients receiving SERMs (ie Tamoxifen) or AIs prior to reconstruction.

RESULTS

1,347 flaps were performed on 851 patients. Those receiving hormone therapy (HT) prior to reconstruction had significantly higher rates of preoperative radiation ($p < 0.001$), preoperative chemotherapy ($p < 0.001$), and delayed reconstruction ($p < 0.001$). Thrombotic complications and flap failure were analyzed per HT regimen. When examining venous and arterial thrombosis - both intraoperative or postoperative - there were no statistically significant differences in thrombotic complications or flap failure in comparing those that did receive preoperative HT versus those that did not receive preoperative HT. Similarly, there were no significant differences specific to those receiving Tamoxifen or Aromatase inhibitors. A post-hoc power analysis was performed with the supposition that HT exposure results in a two-fold increase in complication rate. The study power was found to be 0.863.

CONCLUSIONS

Tamoxifen may have been previously overestimated as a microvascular thrombotic risk factor. AIs were not found to increase thrombotic complications despite continued perioperative administration. Given the adequate study power (> 0.800), there is a low likelihood of Type II error. We recommend withholding Tamoxifen for no longer than two weeks prior to surgery and suggest further study as an even shorter time interval may be appropriate.

09.58 IMMEDIATE VERSUS DELAYED CONTRALATERAL BREAST SYMMETRISATION IN UNILATERAL DIEP FLAP BREAST RECONSTRUCTION

Elaine M SASSOON, Rickie G WADE, Richard M HAYWOOD, Rozina S ALI, Andrea FIGUS, Norwich, United Kingdom

INTRODUCTION

Women undergoing unilateral DIEP flap breast reconstruction may be offered a contralateral balancing procedure either at the time of reconstruction (immediate symmetrization) or at a later stage (delayed symmetrization). As there is a potential benefit for patients and health services from immediate contralateral breast symmetrization and the literature is still lacking comparative outcome data, we planned a prospective comparative analysis of immediate versus delayed contralateral symmetrization for women undergoing unilateral DIEP flap breast reconstruction.

METHODS

Over a 5-year period, the demographics, cancer treatments and operative outcomes of all consecutive DIEP flap breast reconstructions with or without contralateral balancing surgery were prospectively recorded. Patients were categorised as immediate or delayed symmetrization for comparative analysis using t-tests for continuous data and Chi Square or Fisher Exact tests for categorical data and to generate odds ratios (OR).

RESULTS

There were 251 women who received unilateral DIEP flap breast reconstruction and of these, 127 (50.6%) underwent contralateral breast symmetrization. There were 103 (81.1%) immediate and 24 (18.9%) delayed balancing procedures. Immediate symmetrization did not increase total operative time or the risks of peri-operative complications. Delayed symmetrization was associated with a significantly greater risk of revision breast surgeries, including lipofilling/liposuction, flap remodelling and scar revision.

CONCLUSION

Immediate contralateral symmetrization as reduction/mastopexy procedures appears to be a safe, beneficial and cost-effective adjunct to unilateral DIEP flap breast reconstruction, without increasing operative time or risks of adverse outcomes. Conversely, delayed contralateral symmetrization is associated with an increased frequency of revision breast surgeries.

**10.10 POST MASTECTOMY BREAST RECONSTRUCTION IN
LOCALLY ADVANCED BREAST CANCER PATIENTS;
BENEFIT OR CONTROVERSY?**

Anna ANGELAKI, Elena, PROUSSKAIA, Whitney CHOW, Cleona KIRWAN,
Jian FARHADI, London, United Kingdom

INTRODUCTION/PURPOSE

Locally-advanced breast cancer (LABC) requires aggressive surgical and adjuvant treatment. The role of reconstruction following mastectomy in such cases remains controversial. The purpose of this study is to provide information regarding reconstruction post mastectomy in patients with LABC.

MATERIAL AND METHODS

All patients with LABC treated with mastectomy with or without reconstruction from February 2007 to April 2013, in St Thomas' Hospital, London were retrospectively identified. Data including demographics, presence of metastasis, delay in adjuvant therapy, length of hospitalization, surgical complications, local recurrence and disease-free survival were examined and statistically analysed.

RESULTS

A total of 114 patients were identified. 26 had no reconstruction (NR), 38 had implant-based reconstruction (IBR) and 50 had autologous tissue reconstruction (ATR). 27 patients had and 87 patients did not have distant metastases. Of these, 44% and 16% respectively had NR, however 56% and 84% respectively were reconstructed (R).

No difference was found in the percentage of patients, that had their adjuvant treatment delayed, among the different groups (16% (NR) versus 18% (R), $p=0.8$; 22% (IBR) versus 14% (ATR), $p=0.3$). Mean length of hospitalization for the NR, IBR and ATR groups were 2.7, 6.7 and 8.3 days respectively. Rates of complications requiring readmission were 36% (NR), 42% (IBR) and 32% (ATR). In the IBR group, 60% of implants were removed due to complications. Local recurrence rates in the NR and R groups were 7% and 2% respectively. Mean survival times in patients that died were 18 (NR), 10.3 (IBR) and 12.2 (ATR) months.

CONCLUSION

Post mastectomy reconstruction is highly important and should be offered to patients with LABC after informing them about complications. The superiority of ATR over IBR should be noted, as IBR is associated with higher complications rate and there were no further differences in the data analysed between the two groups.

11.00-13.00 SCIENTIFIC SESSION, No. 8 BREAST RECONSTRUCTION AND LYMPHATICS

Session Chairpersons:

Dietmar ULRICH, Nijmegen, The Netherlands

Corrado RUBINO, Salerno, Italy

11.00 SILICONE EXPANDERS AND IMPLANTS MAY JEOPARDIZE ECHOCARDIOGRAPHIC IMAGE QUALITY IN POST-MASTECTOMY PATIENTS

Marco PIGNATTI, Francesca MANTOVANI, Andrea BARBIERI, Lucrezia PACCHIONI, Giorgio DE SANTIS, Modena, Italy

INTRODUCTION

Silicone expanders and implants are the most common breast reconstruction technique after mastectomy.

Post-mastectomy patients often need echocardiographic monitoring of potential cardiotoxicity secondary to cancer chemotherapy.

A few individual cases of echocardiographic acoustic window impairment caused by silicone implants for breast augmentation have been previously described.

This study investigates on the echocardiographic image quality limitation in a patient population who has undergone breast reconstruction with silicone expanders and implants.

MATERIAL AND METHODS

The women who underwent mastectomy and breast reconstruction with expander-implants and also received echocardiographic follow-up at our institution from January 2000 to August 2012 were assigned to a study group (left or bilateral breast expander-implants) or to a control group (right breast expander-implants).

The impact of the presence of breast expander-implants on quality of echocardiographic images was tested (ANCOVA model).

RESULTS

Forty-four consecutive women with a breast expander-implant (30 on the left side, 14 on the right side) were included. The mean volume of the devices was 353.2 ± 125.5 cc.

The quality of the echocardiographic images was good or sufficient in all the patients (14, 100%) with a RIGHT expander-implant while in patients with a LEFT expander-implant it was judged as adequate only in 50% of cases (15 patients) and inadequate in the remaining 15 ($p < 0.001$).

Multivariate analysis indicated a persistent relationship between device position (left vs. right) and image quality ($p = 0.001$). This was not dependent on BMI ($p = 0.828$), smoking habits ($p = 0.250$), device volume ($p = 0.334$) and type of device (expander vs. implant, $p = 0.045$).

CONCLUSIONS

Plastic and breast surgeons should be aware that in patients who undergo left breast reconstruction after mastectomy for breast cancer, silicone expanders and implants considerably reduce the image quality of echocardiographic studies. This observation may have important clinical implications, given the need for accurate results from echocardiographic surveillance prior to and during chemotherapy.

11.08 THE REVERSE ABDOMINOPLASTY AND FAT TRANSFER (RAFT) PROCEDURE: A MINIMALLY INVASIVE AUTOLOGOUS BREAST RECONSTRUCTION ALTERNATIVE.

Roger KHOURI, Eufemiano CARDOSO, Silvia ROTEMBERG, Miami, USA

Autologous breast reconstruction is preferably done with abdominal tissue. We report on a novel incisionless alternative to classic flap transfers. It consists of liposuctioning the abdominal apron, releasing its vertical attachments, sliding it up to the chest, suspending it to the clavicle, purse-stringing it into a dome, and re-inflating it with fat grafts.

PROCEDURE

The advanced tissue is a crescent 5-12cm wide anterolateral thoracoabdominal flap extending from the medial mammary fold to the midaxillary 4th rib. The abdominal apron and lateral thoracic flaps are percutaneously mobilized after tumescent liposuction and secured by a purse string suture threaded from the midclavicle to grab the deep dermis of the caudal edge of the flap and back up through the pectoralis to close the loop. Anchoring the suture to the clavicle and tightening the loop advances the flap to mushroom up a breast mound with new inframammary and lateral breast folds. Lipofilling the mobilized tissue provides volume while percutaneous needle dissection re-orientes the fibers, relieves tension and eliminates unwanted folds. If needed a small implant is inserted through an axillary incision.

RESULTS

Over the past four years we performed 98 RAFT procedures to successfully reconstruct 75 breasts. 23 breasts required a second RAFT for additional flap advancement. Most of the indications were previous implant or flap failures. Early complications consisted of 22 suture dehiscence, 7 intercostobrachial nerve entrapments and 3 pneumothoraces.

CONCLUSION

Compared to the isolated distant flaps, RAFT is a minimally invasive, incisionless, and patient friendly breast reconstruction alternative that utilizes the reverse abdominoplasty tissue. The purse string suture suspended to the clavicle secures the advancement and sculpts pleasing inframammary and lateral breast folds. Lipofilling the purse-stringed advanced flap creates the breast mound. It is a first choice reconstructive option that is also available when all else has failed.

**11.16 OUTCOMES OF TREATING STAGE-II LYMPHEDEMA
PATIENTS WITH FREE LYMPH NODE TRANSFER (LNT):
A PROSPECTIVE CONTROL STUDY**

Dimitrios DIONYSSIOU, Athanasia PANAGOOU, Georgios ARSOS, Efterpi DEMIRI, Thessaloniki, Greece

INTRODUCTION

Symptomatic lymphedema patients are traditionally managed with physical therapy. Microsurgical methods are used in an increased manner for treating severe lymphedema cases. The purpose of this prospective control study is to evaluate the effectiveness of free LNT in stage-II lymphedema patients.

METHODS

During the last three years, 104 patients were examined in our outpatient lymphedema clinic. Forty-one cases were diagnosed as stage-II lymphedema, based on clinical examination, MRI and lymphoscintigraphy of the affected limb (29 upper, 12 lower). Patients were randomly divided in two groups: Group-A patients (n=21, mean age 47 years) underwent microsurgical LNT; Group B patients (n=20, mean age 49 years) were managed by conservative therapy, including manual lymph drainage and compression garments, for six months. Post-operatively, Group A patients followed a similar six-month physiotherapy program. All forty-one patients stopped physiotherapy and compression bandaging at the sixth month and underwent re-examination of the affected extremities at the twelfth month; limb volume was measured, infection episodes were recorded, and subjective information regarding pain, feeling of heaviness and overall functional recovery, was also given by each patient.

RESULTS

Reduction of the limb volume was observed in both groups; mean reduction was greater in Group-A (57%) than in Group-B (18%). In Group-A, only one infection episode per patient was documented, while three episodes per patient were recorded in Group-B. All Group-A patients reported painless and feeling of heaviness-free extremities with overall functional improvement. In Group-B, five out of twenty patients were painless, thirteen reported reduction of pain, while nine reported reduction of heaviness; only twelve patients stated subjective functional improvement of the limb, while eight reported no functional changes.

CONCLUSION

LNT represents an effective therapeutic approach for stage-II lymphedema patients; it significantly reduces the limb volume, decreases recurrent infections and improves the overall function of the affected extremity.

**11.24 MICROVASCULAR LYMPH NODE TRANSFER FOR
 POSTMASTECTOMY LYMPHEDEMA PATIENTS**

Anne SAARIKKO, Tiina VIITANEN, Pauliina HARTIALA, Erkki SUOMINEN,
Helsinki, Finland

INTRODUCTION

Postmastectomy lymphedema has remained a challenging problem with no curative treatment. We have recently shown that microvascular lymph node transfer can be easily combined with routine breast reconstruction (Ann Surg 2012) to rebuild lymphatic vascular anatomy in the axilla after breast cancer surgery. However, in this method lymphatic anastomoses are expected to form spontaneously

METHODS

We have analyzed the results of 19 lymph node transfer patients operated during 2007-2012. In 14 patients lymph node transfer was done simultaneously with the lower abdominal breast reconstruction. The effects of the surgery on the lymphatic vessel function both on the upper and lower limb were evaluated by the lymphoscintigraphy and circumference measurements. We have also evaluated biological effects of lymph node transfer surgery.

RESULTS

Our results show that lymph node transfer effects locally on the cytokine and growth factor profiles, providing scientific rationality for this new method. The lymphatic transport index was improved postoperatively in 7/19 of the patients. 10/19 of the patients were able to reduce or even discontinue using compression garments. Arm circumferences were reduced in 12/19 of the patients. 6 of the 7 patients with preoperative erysipelas infections have not had infectious episodes postoperatively during 22-74 months follow-up. In some early patients lymphoscintigraphy of the lower limbs demonstrated delay in the lymphatic flow on the donor site. Flap design was modified after these results.

CONCLUSION

Lymph node transfer can be easily combined with the lower abdominal breast reconstruction and popularity of this new method is rapidly increasing. However, special attention has to be paid not to harm lymphatic vessel function of the lower limbs! In the future our goal is to combine lymphatic growth factor therapy with the lymph node transfer to gain more efficacy for the lymphedema treatment.

11.36

THE PRESENCE OF ADIPOSE TISSUE IN NON-PITTING LYMPHEDEMA LIMITS COMPLETE LIMB REDUCTION USING CONSERVATIVE TREATMENT OR MICROSURGICAL RECONSTRUCTION

Håkan BRORSON, Malmö, Sweden

INTRODUCTION

In 1987 we noted an excess of adipose tissue in non-pitting lymphedematous tissue and recommended liposuction in order to remove the excess volume. This was questioned by several lymphologists. Previous research showed increased adipose tissue in intestinal segments in patients with Crohn's disease (fat wrapping) showed that inflammation plays an important role in adipose tissue deposition. A functional inactivation of a single allele of the homeobox gene *Prox1* led to adult-onset obesity due to abnormal lymph leakage from mispatterned and ruptured lymphatic vessels. Adipogenesis in response to lymphatic fluid stasis is associated with a marked mononuclear cell inflammatory response and potently upregulates the expression of fat differentiation marker. In Graves' ophthalmopathy, with excess intraorbital adipose tissue and exophthalmos, showed overexpression of adipocyte related immediate early genes which play a role in both orbital inflammation and adipogenesis. We therefore wanted to analyze the excess volume in arm lymphedema following breast cancer treatment.

MATERIAL, METHODS AND RESULTS (MEAN)

1. Liposuction for non-pitting arm lymphedema showed 90% fat in the aspirate (n=120).
2. Investigation with Volume Rendering Computer Tomography (n=11) and Dual-energy X-ray absorptiometry (n=18) showed 81% and 73% more fat, respectively, in the non-pitting swollen arm preoperatively, followed by normalization at 3 months.
3. Several genes (*ABCG1*, *ACTA2*, *SFRP2*, *TNC*, *PTX3*, *CPMX1*) responsible for wound healing, fibrosis, fat metabolism, inflammation, differentiation, development, adhesion, and the cytoskeleton were upregulated in non-pitting arm lymphedema (n=10).

CONCLUSION

Patients with chronic non-pitting lymphedema develop large amounts of subcutaneous adipose tissue, most probably due to chronic inflammation. Liposuction can be performed in patients who fail to respond to conservative management or microsurgical reconstruction because the hypertrophy of the subcutaneous adipose tissue cannot be removed or reduced by these techniques. Long-term outcome, 20 years for arms and 10 years for legs, shows no recurrence of the swelling.

**11.48 SIMULTANEOUS TREATMENT OF POSTMASTECTOMY
LYMPHEDEMA AND BREAST RECONSTRUCTION WITH
A CHIMERIC DIEP AND LATERAL GROIN LYMPH NODE
FAT PAD FLAP**

Felix Hubertus VOLLBACH, Steffen SCHIRMER, Christoph HEITMANN,
Hisham FANSA, Munich, Germany

INTRODUCTION

Breast cancer related lymphedema is estimated to occur in 16-39% of patients. New surgical techniques have been introduced to ameliorate lymphedema and improve quality of life. As the lateral groin lymph node fat pad flap is vascularized by the superficial inferior epigastric artery (SIEA), a chimeric flap comprising a DIEP flap for breast reconstruction and a lymph node flap vascularized by the SIEA was described (Saaristo, et al). The goal of the study was to introduce a simple, single-stage operative technique for breast reconstruction and lymphedema therapy.

METHODS

Lymphedema was diagnosed clinically. Limb diameter, pain and tone were assessed. Quality of life impairment was evaluated by the LYMQUOL questionnaire. All procedures were planned using a CT-Angiography. The axilla was cleared from all scar tissue. Branches of the subscapular vessels served as recipient vessels for the lymph-node flap. If the SIEA was insufficient only the vein was harvested. The DIEP-flap was anastomosed to the internal mammary vessels.

RESULTS

From 2012 to 2013 14 patients received a chimeric DIEP-lymph flap reconstruction. Stage 1 and 2 lymphedema had been present from 1 to 10 years. Three patients with fibrotic breast after breast-conserving irradiation therapy received a simultaneous secondary mastectomy. In 5 patients only the SIEV was anastomosed. All flaps survived. One patient had a superficial dehiscence at the donor site which was treated conservatively. No other donor site lymph-related complications were noted. All patients reported immediate pain relief and LYMQUOL showed significant amelioration. Decreases in limb diameter started 2 months postoperatively.

CONCLUSION

The chimeric DIEP/lymph node flap allows simultaneous, single-stage breast reconstruction and lymphedema treatment. A separate SIEA anastomosis is not mandatory. Removal of scar tissue with consecutive lymph node/fat pad flap interposition led to immediate pain relief, while limb diameter reduction required a prolonged interval.

**12.00 EVOLUTION FROM TUG TO PAP FLAP FOR BREAST RE-
CONSTRUCTION: COMPARISON AND REFINEMENTS**

David DOWER, Judith HUNTER, Alessia LARDI, Jian FARHADI, London,
United Kingdom

INTRODUCTION

The transverse upper gracilis (TUG) flap is a good alternative for autologous breast reconstruction. Limitations, however, include: short pedicle, modest volume, muscle sacrifice and a problematic donor site. The Profunda Artery Perforator (PAP) flap utilizes large perforators posterior to the gracilis muscle, harvesting posterior thigh adipose. We describe our preliminary experience of its use and compare it to our large series of TUG flaps.

METHOD

We obtain imaging on all patients for whom a PAP flap reconstruction is planned. Having visualized potential perforators, we raise the flap in the 'frog-leg' or lithotomy position, negating the need for patient turning. The flap is raised from anterior to posterior; if the perforators are deemed insufficient to base a flap on intra-operatively, the Inferior Gluteal Artery perforators (IGAP) are still available for use as a bail out. A prospective database of all free flap breast reconstructions performed by the senior author was utilized to compare TUG and PAP flaps undertaken between 2010-2013.

RESULTS

52 TUG and 13 PAP flaps were performed. 4 PAP flaps were converted to IGAP flaps intra-operatively. 98.4% flaps were successful. The PAP flap allowed greater flexibility in inset compared to the TUG flaps. Mean flap weight was 295g (TUG) and 298g (PAP). Donor site complications included 4 seromas, 2 neuropraxias with 3 scar revisions for the TUG series. We have had 1 seroma in the PAP flaps.

CONCLUSION

Our preliminary experience of the PAP flap has been favourable compared to the TUG flap. Although it is a more challenging flap to raise, it does have the benefits of a longer pedicle, without the need to sacrifice muscle; the perforators should have a more defined and larger perfusion zone, with larger potential adipose harvest, ease of flap inset, better hidden scar and less issues with seroma.

12.12 IMPROVEMENT OF SENSATION RECOVERY IN TWO-STAGE AUTOLOGOUS BREAST RECONSTRUCTION WITH BURIED DIEP FLAP

Sarah CALABRESE, Grazia DEVIGILI, Roberto BARAZIOL, Eugenio FRACCALANZA, Gabriele SALLOUM, Jacopo TESEI, Roberto ELOPRA, Mauro SCHIAVON, Udine, Italy

BACKGROUND

DIEP flap is considered the gold standard for breast reconstruction in post-mastectomy patients. Two-stage reconstruction, performing an expansion of the thoracic skin flaps, allows to avoid the patch-like appearance of the abdominal DIEP skin paddle, obviously showing that the breast has been reconstructed.

The aim of the present study is to evaluate sensation recovery in the breast reconstructed with buried DIEP flap, compared to standard DIEP flap.

METHODS

Twenty patients reconstructed between 2009 and 2011 to obtain a minimum follow-up of 2 years, have been studied. Ten patients underwent standard DIEP flap breast reconstruction. Ten patients had buried DIEP flap breast reconstruction through a previous expansion of thoracic flaps. Tactile sensibility have been tested with cotton gauze and Von Frey filaments; pain sensibility through disposable safety needle; thermal sensibility has been tested by a computerized method (Medoc™ Thermal Sensory Analyserglass), vibratory sensibility by 128Hz Rydel-Seiffer tuning fork. Sensibility was detected in both reconstructed and non-reconstructed breast. Sensibility recovery has been quantified calculating the ratio between the total breast surface area (TBSA) and the anaesthetic detected area (ADA).

RESULTS

Sensibility recovery has been significantly higher in buried than in standard DIEP flaps ($p < 0.05$). Breasts reconstructed with buried flaps show a mean area of sensation recovery that is 65% of TBSA; in the standard DIEP reconstruction it is 5%. In buried flap, best sensibility recovery has been found in the upper and lateral quadrants, while the worst at the inferior pole.

CONCLUSIONS

In two-stage DIEP breast reconstruction scar evidence is reduced and sensibility recovery has been proved to be significantly higher compared to standard DIEP flap reconstruction. Even if not as good as in the healthy breast, the significant better sensibility recovery of the two-stage buried DIEP reconstruction improves the quality of reconstruction and the patient's quality of life.

12.24 THE USE OF THE SERRATUS ANTERIOR MUSCLE VASCULAR PEDICLE AS RECIPIENT SITE IN DIEP FLAP TRANSFER FOR BREAST RECONSTRUCTION

Marco PAGNONI, Benedetto LONGO, Rosaria LAPORTA, Enrico CAVALIERI, Fabio SANTANELLI DI POMPEO, Rome Italy

INTRODUCTION

Despite large consensus over DIEP flap breast reconstruction, the choice between recipient vessels still remains controversial. Axillary region's drawbacks are accessibility, oncological surgery and radiation therapy involvement, lateral flap positioning, shoulder stiffness; while internal mammary are chest-wall contour defects, respiratory movements during anastomosis, postoperative fatal bleeding, pain, pneumothorax, sparing vessels for heart surgery. Internal Mammary Perforators (IMP) are often unavailable on delayed reconstructions and size could be very small. Original unreported experience on the Serratus Anterior (SA) muscle's recipient pedicle is presented.

PATIENTS AND METHODS

On 340 breast reconstructions performed with DIEP flap, 11 had vascular anastomoses to the SA branches. It was used for a salvage procedure in 3 cases and electively planned in following 8 cases.

RESULTS

Mean operative time was 4 hours 15 minutes; no vascular complications, hematomas or seromas occurred during postoperative course. All flaps healed uneventfully but one, which developed partial skin flap necrosis resolved with outpatient care treatment. Serratus Anterior vessels were constantly present with a length and caliber competent to the flap's pedicle. It was possible to spare the thoracodorsal and long thoracic nerves avoiding functional impairment in all cases. At mean 24-month follow-up no complications, recurrences, abdominal bulging or herniation and muscle functional impairment were reported.

DISCUSSION

Compared to the IMP the SA pedicle offers the same reduced dissection at the donor site, yet more advantages at recipient site, even though supermicrosurgical skills are still required due to limited vessels' caliber.

In our experience previous lymphadenectomy did not affect the presence of SA branches, constantly present with appropriate length and caliber for a tension free anastomosis and adequate medial inseting of the flap. In addition, does not compromise Latissimus Dorsi muscle vascularization, sparing for further salvage procedures.

CONCLUSIONS

Branches from the SA pedicle are reliable choice in salvage procedures and suitable recipient option for elective supermicrosurgical breast reconstruction.

12.32 IS EXTENSION OF THE SUBMUSCULAR POCKET USING A POLYGLACTIN MESH IN SINGLE STAGE IMMEDIATE BREAST RECONSTRUCTION AFTER SKIN SPARING MASTECTOMY SAFE AND EFFECTIVE? A COMPARATIVE STUDY

Oanna MEYER GANZ, Mickael TOBALEM, Ale MODARRESSI, Badwi ELIAS, Brigitte PITTET-CUÉNOD, Geneva, Switzerland

BACKGROUND

Skin-sparing mastectomy (SSM) allows immediate breast reconstruction (IBR) with definitive implants. Complete submuscular implant placement prevents implant exposure but restricts implant volume and increases the risk of a high-riding implant and loss of natural ptosis. Release of the inferior attachments of the pectoralis major muscle with completion of its lower part by a foreign material has been suggested to overcome these limitations. We compared the complications and outcomes of the submuscular implant pocket vs. partial subpectoral pocket with a resorbable polyglactin mesh extension in single-stage prosthetic breast reconstruction after SSM.

MATERIAL AND METHODS

We reviewed 139 women who underwent 161 SSM with IBR from 2002 to 2010. A complete submuscular pocket was performed in 46 breasts and a partial submuscular pocket with polyglactin (Vicryl®) mesh extension was performed in 115 breasts. Early complications, reoperation rate, implant size and contralateral breast surgeries were compared between the two groups.

RESULTS

Early complications (hematoma, infection, skin necrosis, dehiscence) were similar between the two groups (9% vs 12%). Mean implant weight was 284 g in the submuscular group and 329 g in the mesh group ($p = 0.0096$). There was a trend towards more contralateral breast augmentation (15% vs. 7%) and less contralateral mastopexy for symmetrisation (11% vs. 22%) in the mesh group. Finally, the need for later surgical revision was significantly lower in the mesh group (22% vs. 45%) especially for implant malposition (6% vs. 22%, $p = 0.009$) and implant change (14% vs. 33%, $p = 0.008$).

CONCLUSIONS

Larger implants and better control of implant position were possible using the subpectoral pocket with polyglactin mesh without increasing the complication rate. Since it also recreates a slightly ptotic breast, less contralateral mastopexy procedures were required. The polyglactin mesh is a safe and affordable material in an era of increasing economic pressures.

12.40 CAPSULAR CONTRACTURE IN IMPLANT BASED BREAST RECONSTRUCTION: THE EFFECT OF PORCINE ACELLULAR DERMAL MATRIX

Alessia Marisa LARDI, Mark HO-ASJOE, Jennifer GLENDENNING, Andrew TUTT, Jian FARHADI, London, United Kingdom

INTRODUCTION

Irradiation of implant-based breast reconstructions (BR) is known to increase capsular contracture (CC) rates on average by 5-fold over nonirradiated reconstructions. The use of acellular dermal matrix (ADM) has been associated with lower CC rates in nonirradiated reconstructions (0-3%). Experimental and clinical studies suggest that ADM may also reduce CC rates in irradiated breasts. The aim of this study was to evaluate CC rates in nonirradiated and irradiated one- and two-stage BRs performed with the assistance of porcine ADM (PADM).

MATERIAL AND METHODS

A two-centre, retrospective, cohort study was performed from December 2008 to October 2012. A total of 200 immediate implant-based BRs were performed using PADM for inferior pole reinforcement. In nonirradiated reconstructions, follow up was performed 6months after BR in one stage and 6 months after exchange of expander for implant in two-stage BR. For irradiated reconstructions, only postoperatively irradiated reconstructions were included and followed up 1 year after termination of radiotherapy. CC was graded using the modified Spear-Baker classification with Grade III and IV CC defined as clinically significant CC.

RESULTS

Of 200 BRs with PADM, 122 were included in this study (84 nonirradiated and 38 irradiated). Grade III/IV CC was higher in irradiated vs nonirradiated reconstructions (13% vs 6%, $P=0.216$). CC was significantly higher in two-stage compared with one-stage procedures (15.8% vs 1.5%, $P=0.022$); both irradiated (18.5% vs 0%, $P=0.295$) and nonirradiated (13.3% vs 1.9%, $P=0.070$) breasts had higher rates in two stage procedures.

CONCLUSIONS

PADM use in implant-based breast reconstruction is associated with a reduced risk of capsular contracture. The reduced risk is maintained in the setting of radiotherapy. Tissue expansion may be a risk factor for capsular contracture. Long-term controlled studies are needed to confirm these results.

14.00-15.30 SCIENTIFIC SESSION, No. 9 PANEL: EYELID SURGERY

Moderator: Grazia SALIMBENI – Pisa, Italy

Participants:

Cesare TIENGO, Padua, Italy
ANATOMY OF THE EYELIDS

Manfred FREY, Vienna, Austria
THE PARALYZED EYELIDS

Bahman GUYURON, Cleveland, USA
EYELID PTOSIS CORRECTION USING MULLER'S
MUSCLE AND CONJUNCTIVA RESECTION

Barry JONES, London, United Kingdom
AESTHETIC SURGERY OF THE EYELIDS

Discussion

Lelio BALDESCHI, Brussels, Belgium
GRAVE'S ORBITOPATHY: TIMING AND STEPS OF
SURGICAL REHABILITATION

Neven OLIVARI, Rösraht, Germany
TRANSPALPEBRAL DECOMPRESSION OF GRAVE'S
OPHTHALMOPATHY BY FAT REMOVAL:
AFTER 3000 OPERATIONS

Discussion

16.00-18.00 SCIENTIFIC SESSION, No. 10 AESTHETICS

Session Chairpersons:

Gusztáv GULYÁS, Budapest, Hungary

Guy MAGALON, Marseille, France

16.00 MRI BASED FAT PAD ANALYSIS OF THE YOUNG AND OLD ORBITA

Vincenzo PENNA, David BRAIG, Björn G. STARK, Freiburg, Germany

INTRODUCTION

Rejuvenational approaches of the periorbital region are based on two principles: the reduction of excess fat or addition of fat (or other fillers). However, both principles lack scientific evidence for the supposed fat changes.

The aim of the study was to evaluate whether the intraorbital fat undergoes depletion, increase or herniation with aging.

PATIENTS AND METHODS

Cranial MRI scans of 105 patients aged 20-35 and 105 patients aged 65-80 the following anatomical dimensions were measured: Area of the intraorbital fat pad, area of the supra- and infraoptical fat pad, area of the bulb and ocular protrusion.

RESULTS

With aging the intraorbital fat pad increases ($p < 0.001$). The suproptical fat pad portion does not change while the lower fat pad increases ($p < 0.001$). The bulbar volume remains stable. Ocular protrusion increases with aging ($p < 0.001$).

CONCLUSION

Our data sustain the clinical impression of fat increase in the lower lid, providing a scientific basis for fat reducing or redistributing operation on the lower lid. In our study a loss of fat volume in the upper lid could not be detected.

16.08

MODIFIED EXTRACORPOREAL SEPTOPLASTY: RESULTS OF LONG TERM FOLLOW-UP AND OUTCOME ASSESSMENT WITH VIDEO-RHINO-HYGROMETER

Giovanni Francesco MARANGI, Vito TOTO, Francesco SEGRETO, Matteo SIGNORETTI, Paolo PERSICHETTI, Rome, Italy

INTRODUCTION

Septal deviation is a major cause of aesthetic disorder and respiratory obstruction. Traditional septoplasty techniques are often inadequate to address severe deviations. We previously described a modified extracorporeal approach based on partial resection of the cartilaginous septum, with preservation of a superocaudal L-strut. The aims of this study were to evaluate the long-term outcomes of this technique and to assess the reliability of Video-Rhino-Hygrometer (VRH), a new device to investigate airflow.

MATERIAL AND METHODS

One-hundred and twenty patients were enrolled. Patients were grouped according to pre-operative septal deviation. Follow-up ranged from 4 to 6 years. Flow improvement was assessed with active anterior rhinomanometry and VRH; subjective evaluation of the respiratory function was obtained by mean of Nasal Obstruction Symptom Evaluation (NOSE) scale. AAR values and NOSE scores were compared with the results obtained preoperatively and 6 months post-intervention.

RESULTS

At long-term follow up, significant improvements in inspiratory flow and obstructive symptoms ($p=0.0122$ and $p<0.0001$, respectively) were found in the whole cohort. In group analysis, significant improvements in NOSE scores and inspiratory flow were found in patients with severe ($p<0.0001$ and $p<0.0001$, respectively) and moderate ($p<0.0001$ and $p<0.05$) deviations. VRH results had the same trends of AAR values.

CONCLUSIONS

The modified extracorporeal septoplasty proved to be functionally effective at long-term follow-up in cases of moderate and severe septal deviation. In this technique, structural support is obtained without destabilizing the keystone area and the conservative remodelling of the quadrangular cartilage allows the use of septal cartilage grafts in revision rhinoplasty. The improvements in respiratory function and obstructive symptoms found at 6-month follow-up were maintained 4 to 6 years post-operatively. VRH proved to be a reliable device, with the advantages of measuring total airflow not altered by single nostril occlusion, being high reproducible and increasing patients' comfort.

16.20 SEPTUM-ENHANCED MAMMAPLASTY IN INFEROCENTRAL PEDICLED BREAST REDUCTION FOR LARGE-BREASTED AND GIGANTOMASTIA PATIENTS

Aurelio PORTINCASA, Arianna MAIORELLA, Antonella CAMPANALE, Domenico PARISI, Roberto CECCHINO, Foggia, Italy

INTRODUCTION

Inferior-pedicle (IP) and free-nipple-grafting are commonly used as breast reduction (BR) techniques for patients with large-breast hypertrophy and gigantomastia. Limitations of these techniques are respectively possible vascular compromising and total/partial necrosis of nipple-areola complex (NAC). Authors describe the innovative inferocentral-pedicled reduction mammoplasty (ICPBR) enhanced by preservation of Würinger's Septum for severe-hypertrophic breasts.

MATERIAL AND METHODS

Among 287 breast reductions performed between January 2001 and 2013, 83 (28.9%) large-breasted and gigantomastia patients met the inclusion criteria (breast volume resection >400g - sternal-notch-to-nipple distance >33cm) and included in the study. Patients were stratified according to pedicle-type: group-A (51-patients), underwent ICPBR with Würinger's Septum preservation; group-B (32-patients), underwent IPBR. Groups were compared for NAC vascular complications, surgical revisions, wound-healing period, and patient satisfaction at minimum 6-months follow-up assessed by 5-category questionnaire (breast size, shape, symmetry, texture, and scars appearance), with 5-Likert subscales (1=poor to 5=excellent). Descriptive statistics were reported and comparisons of performance endpoints between groups were performed using Chi-squared, Fisher's exact and Mann-Whitney-U tests, with p-value <0.05 considered significant.

RESULTS

Group-A and group-B had respectively mean age of 48.3±12.4 and 50.1±11.7 years, mean BMI of 23.8 and 24.6, mean weight resected of 560±232g and 590±195g, mean sternal-notch-to-nipple distance of 35.1cm and 34.3cm, average nipple-elevation of 9.7cm and 9.5cm. Among group-a and group-b, NAC complication rates were respectively 6.2% and 24.2% (p=0.03), surgical revisions rates were 33.3% and 60% (p=1.00), healing time 15.90±3.2 and 19.03±5.9 months (p=0.002), and mean patients' satisfaction scores were 19.9±2.6 and 18.7±3.4 (p=0.07).

CONCLUSIONS

ICPBR technique enhanced by Würinger's Septum preservation was found to be a reproducible and effective procedure for hypertrophic-breasted and gigantomastia patients, improving reliability of vascular supply to the inferior-central pedicle. Authors do believe this procedure should be regarded as an innovative and safe option giving optimal aesthetic outcomes in this demanding group of patients.

16.32 IMMEDIATE MEGA VOLUME FAT GRAFTING TO THE BREAST FOLLOWING REMOVAL OF BREAST IMPLANTS

Saad DIBO, Marvan ABOUD, Brussels, Belgium

INTRODUCTION

The purpose is to share the authors experience with immediate mega volume fat grafting to the breast following removal of breast implants.

MATERIAL AND METHODS

All patients, who required removal of breast implants, were included in this study. Cases with ruptured implants were excluded. Capsulectomy is performed only for grade 3 and 4 capsular contractures. Fat is harvested by Power-Assisted Liposuction (PAL) using 3 mm multi-hole-cannula. The latter is also used to perform multidirectional and multilayered tunneling in the recipient site, in a way to fashion a matrix for fat grafting. Following fat preparation by decantation, injection is carried out in multiple planes, using multiple access points with a custom-made V-shaped 3 mm multi-hole-cannula, enabling simultaneous vibration of the recipient site during fat injection. A drain is inserted in the breast pocket before closure of the wound.

RESULTS

The technique was applied for 80 patients, Sizes of the removed implants ranged between 200 and 400 cc. The injected volumes per session ranged from 300 to 600 ml, taking into account a 1.5:1 ratio of transplanted fat to original size of implant. The operative time ranged between 50 to 70 min. Only one injection session was required. The follow up period ranged between 12 and 36 months. Complications included 6.25 % fat cysts.

CONCLUSION

Simultaneous fat injection and vibration following multidirectional multilayered tunneling improves diffusion of the injected fat in the created tunnels of the matrix, enabling larger volumes of fat injection. The expanded breast skin and subcutaneous tissues following removal of the implant provide a large third space, enabling immediate mega volume fat grafting. Scoring of the capsule and placement of drains insure total collapse of the capsule and further expansion of the breast third space, increasing the possible volumes of fat grafting.

16.44 EVIDENCE-BASED SURGICAL PLANNING IN AESTHETIC BREAST SURGERY-QUANTIFYING LONGITUDINAL CHANGES

Ciara McGOLDRICK, Elisabeth HALL-FINDLAY, Belfast, United Kingdom

GOALS/PURPOSE

This study uses pre- and post-operative measurements in aesthetic breast surgery to enable the surgeon to both predict results and manage patient expectations.

METHODS/TECHNIQUE

The established practice of the senior author is to routinely perform standard measurements pre-operatively and at each post-operative visit. 100 patients undergoing each of breast reduction, breast augmentation and mastopexy/augmentation were analysed, pooling the measurements into defined post-operative time points to allow comparison.

RESULTS/COMPLICATIONS

In total, over 3000 measurements were recorded with an average follow-up 54.9 weeks (range 1-286 weeks).

BREAST REDUCTION COHORT

Intraoperatively, the nipple was placed at a mean SSN-Nip of 23.51cm. In the post-operative period this nipple position was maintained (23.50cm), while the SSN-IMF distance shortened by almost 1cm. and even after 3 years this change was not considered significantly different (Mean SSN-Nip 23.98cm, t-test $p=0.33$).

BREAST AUGMENTATION COHORT

The immediate post-operative measurements showed the SSN-Nip distance drop by approximately 2cm, with the inframammary fold dropping by 1.5cm, which was statistically significant ($p<0.001$). These measurements showed increasing descent of the breast gland, with all distances increasing by a further 1cm during the second year post-operative year.

MASTOPEXY-AUGMENTATION COHORT

Intra-operatively the nipple was placed at mean SSN-Nip of 23.51cm. Even within the immediate post-operative period this had dropped by under 2cm with the IMF dropping by just under 1cm. However, in comparison to the augmentation alone group, this cohort did not show evidence of breast gland descending further throughout later time points.

CONCLUSIONS

This information can guide surgical planning of nipple position, as intra-operative nipple placement in mastopexy-augmentation must account for nipple dropping by 2cm compared to a breast reduction where it remains largely static. The variation in the position of the IMF should encourage the use of other landmarks, such as the upper breast border, for pre-operative planning.

16.52

THE EFFECT OF LATE INFECTION AND ANTIBIOTIC TREATMENT ON CAPSULAR CONTRACTURE IN SILICONE BREAST IMPLANTS: A RAT MODE

Katherine MILLER, Álvaro CABELLO, Diego MARRÉ, Bernardo HONTANILLA, Pamplona, Spain

PURPOSE

The affect of late infection on capsular contracture has yet to be established, leaving a gap in clinical guidelines for the treatment of breast implant patients. This experiment is the first to assess whether late infections increase the incidence of capsular contracture and if treatment of these infections could reverse this effect in an in vivo rat model.

METHODS

Five groups of 15 female Windsor rats received two silicone implants in separate dorsal, subcutaneous pockets. All groups except the control underwent injection of a human strain of Methicillin-sensitive Staphylococcus aureus (MSSA) at least 30 days after implantation, allowing for physiologic capsule formation. Groups 2 and 4 received a peritoneal injection sufficient to induce a transient bacteremia while Groups 3 and 5 received a subcutaneous injection sufficient to induce abscess formation. Group 4 received prophylactic antibiotic treatment while group 5 received a course of antibiotics after bacterial inoculation.

RESULTS

Implants were removed 60 days after insertion with capsules measured for thickness and sent for bacterial culture. Compared to the control (group 1), capsule thickness in groups 2 and 3 were statistically greater ($p < 0.05$), a difference not observed in groups 4 and 5. Capsules from groups 2 and 3 were positive for human MSSA more often than those from groups 4 and 5.

CONCLUSIONS

The difference in thickness between the control capsules and those from Groups 2 and 3 is an indication that late infections increase the incidence of capsular contracture. The increased frequency of cultures positive for human MSSA in these groups supports the cause and effect nature of these results. The fact that there was no statistical difference in capsule thickness between the treated groups and control suggests that treating late infections could in fact reduce the incidence of capsular contraction

**17.00 TOLL-LIKE RECEPTOR 4 AND ESTROGEN RECEPTORS
EXPRESSION IN HUMAN BREAST IMPLANT CAPSULES**

Francesco SEGRETO, Giovanni Francesco MARANGI, Daniele TOSI, Luca PENDOLINO, Paolo PERSICHETTI, Rome, Italy

INTRODUCTION

Capsular contracture often complicates breast augmentation and reconstruction. Fibroblasts are responsible for the production of extracellular matrix (ECM) and pro-inflammatory signals. They can differentiate into myofibroblasts, which are involved in the pathogenesis of capsular contracture. Toll-like receptor 4 (TLR4) has been demonstrated to play a role as a biosensor of tissue damage and sterile inflammation; it is overexpressed in keloids and hypertrophic scars. TLR4 stimulation in fibroblasts induces transcription of genes involved in ECM remodeling and tissue repair; furthermore, it enhances sensitivity to TGF- β 1 and promotes transition to myofibroblasts. In TLR4 $^{-/-}$ mice implanted with silicone shells, the inflammatory infiltrate, capsular thickness, VEGF and TGF- β 1 were reduced. Seventeen- β -estradiol promotes myofibroblasts contraction and differentiation by mean of TGF- β ; moreover, it increases the expression of TLR4 and the production of pro-inflammatory mediators by macrophages. Estrogen receptor- α (ER- α) stimulation induces conversion of fibroblast into myofibroblast, while estrogen receptor- β (ER- β) activation promotes ECM production and increases wound tensile strength. The aim of the study was to investigate the expression of TLR4 in breast implant capsules and its relationship with estrogen receptors, collagen types and angiogenesis.

MATERIALS AND METHODS

The study enrolled 30 women who underwent expander removal following breast reconstruction. Specimens were stained with Hematoxylin/Eosin, Masson trichrome, immunohistochemistry and immunofluorescence for TLR4, alpha-Smooth Muscle Actin (α -SMA), ER- α and ER- β , Collagen types I and III, CD31.

RESULTS

TLR4 was expressed by fibroblasts and myofibroblasts of capsular tissue. Its expression positively correlated with ER- β expression ($p=0.012$). CD31 score and inflammatory infiltrate negatively correlated with the time from implantation ($p=0.06$ and $p=0.022$, respectively).

CONCLUSION

This study demonstrates the expression of TLR4 in fibroblasts of capsular tissue and its correlation with ER- β positivity. TLR4 and ER- β activations, as well as their interplay, may be involved in myofibroblasts differentiation and in the pro-fibrotic pathogenic process underlying capsular contracture.

17.08

CONCEPTS IN NAVEL AESTHETIC BASED ON A COMPREHENSIVE SURFACE ANATOMY ANALYSIS.

Giuseppe VISCONTI, Marzia SALGARELLO, Rome, Italy

INTRODUCTION

In literature, few studies are available on navel surface anatomy and there is no standardisation regarding its proper placement in abdominoplasty.

MATERIAL AND METHODS

In this observational study we analyzed navel shapes and position according to four proportions on 81 high quality pictures, having been chosen as top bikini 2013 by editors of mass media. An on-line survey on navel shapes and position has been made via facebook.com, involving 1682 people. These were asked to choose the most and the less beautiful navel shape and the ideal navel position on two photographs of the same celebrity/model, of which one was the original photograph and the other one had been edited with the umbilicus position relocated according to the ideal XU:UC ratio of 1.618 (i.e. golden ratio).

RESULTS

The analysis revealed that navel position is quite variable based on the proportions analyzed with an acceptable narrow data spread of the xiphoid-umbilicus:umbilicus-abdominal crease ratio (mean 1.62 ± 0.12). The data dispersion for the other three ratios is wider, making them less reliable as references. The most appreciated navel shapes was oval vertical with superior hooding (82%) and the less appreciated were the protruded one (47%) and the oval horizontal with superior hooding (29%). The majority of survey's participants choose the pictures with the navel relocated according to the golden ratio.

CONCLUSION

This study on 81 worldwide recognized top bikini 2013 reveals that the most attractive navel position is located at XU:UC golden ratio, being always in between the apex of iliac crest and anterior superior iliac spines. Bony landmarks seems to be not reliable as references for proper navel positioning (unacceptable wide data spread). According to these observations, since three months we are using the Fibonacci caliper intraoperatively to precisely locate the navel in abdominoplasty and DIEP flap breast reconstruction.

Guido PAOLINI, Matteo AMOROSO, Benedetto LONGO, Michail SOROTOS, Fabio SANTANELLI DE POMPEO, Rome, Italy

BACKGROUND

The “Coleman system” is recognized as the gold standard for fat transfer, but though effective, it's tedious, time consuming and costly. Our aim is to present a new and more efficient method of fat grafting (Simplified Lipostructure) promising less fat manipulation, time saving and reduced costs.

METHODS

We introduce a modification of the Coleman transfer and injection technique, performed by connecting the 10 ml syringe to the 1 ml one and to the blunt infiltrating cannula through a “three-way stopcock valve”. We retrospectively evaluated two groups of patients who had undergone either Coleman (“standard” group of 111 cases) or simplified lipostructure (“modified” group of 104 cases) for breast reconstruction, comparing surgical staff, operative time, volume of infiltrated fat, cosmetic outcome and complications. Cosmetic outcome of lipostructure was evaluated using a visual analog scale (VAS) based on a 0-10 score. Statistical analyses was performed with the Wilcoxon rank sum test and with Spearman's rank-order correlation, and statistical significance was considered when $p < 0.05$.

RESULTS

The Simplified lipostructure group when compared to Coleman's one, showed reduced operative staff (one member vs two), reduced operative time (66 minutes vs 74,2 minutes) ($p=0.0035$), increased volume of infiltrated fat (167,2ml vs 138,7ml) ($p < 0.0001$), and increased volume of infiltrated fat per minute (2,5ml/min vs 1,84ml/min) ($p=0.0001$), while retaining comparable cosmetic results [7,45 vs 7,25 (0-10 VAS score)] and only minor complications.

CONCLUSION

The “three-way stopcock valve system” provides a closed devices that allows the direct transfer of 10 ml fat in micro-particles to the recipient bed. In our opinion it looks as a smart technical solution to ease syringe refilling, improve fat transplantation times and reduce costs. We find this technical modification easy and effective and therefore recommend it to all surgeons performing fat transfer.

INDEX

25 th Annual Meeting	Program at a glance	2
Abstracts	Thursday afternoon	15
	Friday morning	32
	Friday afternoon	56
	Saturday morning	73
	Saturday afternoon	94