

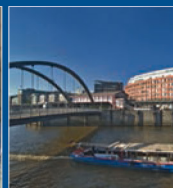
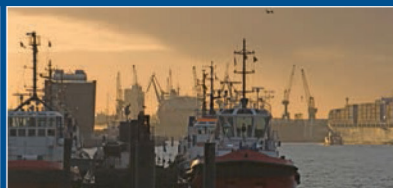


WWW.EPSRC.EU



9th European Plastic Surgery Research Council

August 24-27, 2017
Bucharest / Romania

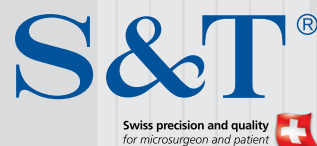


PROGRAM

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Conference Chair

Ion Zegrea, MD PhD
University of Medicine and Pharmacy Carol Davila
37 Dionisie Lupu Street, Bucharest/Romania
ionzegrea@gmail.com

EPSRC President

Christine Radtke, MBA, FEBOPRAS
Medical University of Vienna
Wien/Austria • Währinger Gürtel 18-20
christine.radtke@meduniwien.ac.at

Executive Committee

Christine Radtke (MD PhD MBA FEBOPRAS), Ion Zegrea, MD PhD (University of Medicine and Pharmacy Carol Davila), Felix J. Paprottka, MD (Ocean Clinic, Plastic & Cosmetic Surgery), Dominik Duscher, MD (Johannes Kepler University), Mike Neumeister, MD (SIU School of Medicine), Paul Cederna, MD (University of Michigan), Stephen Warren, MD (NYU Medical School), Ming-Huei Cheng, MD (Chang Gung Memorial Hospital).

ANNOUNCEMENT

10th European Plastic Surgery Research Council Meeting, MS Cap San Diego, August 23 – 26, 2018 • Hamburg/Germany

Conference Organization

Infini PR & EVENTS • Grigore Gafencu Street – 014132 • Bucharest, Romania, Phone: +40 765 393 447 • E-mail: oana.mincu@infini-pr.com, www.infini-pr.com

Venue

Nr. 2B, Bucuresti-Ploiesti Street • Clubul Diplomatic Bucuresti • Website: www.clubuldiplomatic.ro

Date

August, 24 – 27, 2017

Homepage

For latest information please visit www.epsrc.eu.

Arrival

Public transport is not an option due to the fact that is not a direct line
From Bucharest international Airport to booked hotels
The best way to arrive is by taking a taxi from the airport. There is a 10 minutes driving and the prices of the taxis are very convenient.

Recommended taxi companies and prices

Uber	Using credit card
Speed Taxi Premium	3,49 RON /KM
Speed Taxi Standard	1,39 RON /KM
Meridian Taxi	1,40 RON /KM

From booked hotels to event venue – Clubul Diplomatic
If your hotel is near the location you have the walking option or by taxi. The concierge of the hotel you are staying can help you in this direction.

Parking event venue

Parking is available at your own expense in the parking garages near the conference venue. Please see page 9 for the exact location of the meeting venue.

Certification of Attendance

Certificates of attendance for registered participants will be available at the check-in point.

Name Tags

Participants and registered accompanying guests will receive a name tag with their registration. Admission to the meeting and exhibition area is only allowed with a valid tag. Tags must be worn visibly during the congress and at the social activities. Exhibitors' tag will be provided for the staff of the exhibition booths.

Evaluation

We appreciate your active participation by giving your feedback in our evaluation. Please hand in your completed evaluation at the check-in on your last congress day.

Media Check-In

You will find the media check-in the Ballroom Ambassador Conference room.

Opening Hours	Thursday	Friday	Saturday
Check-In		07:00 – 18:30	07:00 – 18:30
Media Check-In	16:30-17:30	07:00 – 18:30	07:00 – 15:00
Ambassador Ballroom Conference room		07:00 – 18:30	07:00 – 18:40
Industrial Exhibition		08:00 – 18:30	08:00 – 15:00

Internet

Free internet access is provided for all participants.

Language

Official meeting language is English.

General Assembly

The General Assembly of the European Plastic Surgery Research Council will take place on Friday, August 25, 2017 at 17:31 hrs. Only members of the EPSRC are requested to attend this meeting, which will be held in a meeting room next to the Conference Hall.

Abstract Publication

Abstracts of the long oral presentations (LOP01–LOP42) will be published in PRS Go.

Industrial Exhibition

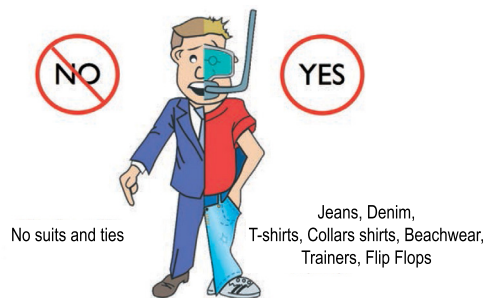
As part of the conference, an industrial exhibition will take place on the premises. Please check the map of all exhibitors on page 26 in the program. The exhibiting companies are looking forward to welcoming you!

Membership

Membership Application Process: Applications for Resident, Active and Associate Membership will be considered when each of the items listed below is received by the Executive Of ce. Only Resident, Active and Associate Members have voting privileges. Membership Requirements: 1. The completed application form (see www.epsrc.eu) 2. A copy of your curriculum vitae. Attendance at a European Plastic Surgery Research Council Annual Meeting is also required. (This may include the meeting in the year in which your application is submitted for vote.)

Payment: Active/Associate/Senior: 50 Euro Resident: 25 Euro

Dress Code



Smoking

Smoking is not allowed inside the congress venue or at other venues for the social functions. Smokers are required to smoke outdoors and in the designated smoking areas.

Technical Information

Please prepare your presentation in 4:3 aspect ratio.

A presentation notebook with a PDF reader and MS Office PowerPoint 2010 will be provided. The use of personal notebooks is possible upon agreement. However, it may interrupt the flow of the program in the lecture hall. Please provide an adapter for VGA if necessary.

A notebook, presenter and laser pointer are available at the speaker's podium in the lecture hall. A technical supervisor can help you. Guidelines for short oral presentations (e-Poster Sessions): Your presentation should not exceed more than 3 slides. Should you exceed your time limit, your presentation will automatically be stopped.

Please note: Certain encodings for video and audio les could lead to problems. Please visit our media check-in.

Should you wish to use non-digital equipment, please contact us. We can be reached at www.epsrc.eu.

Submitting your Presentation

Please submit your presentation at the media check-in in the Ballroom Ambassador Conference room on the day before your presentation, but not later than 2 hours before the presentation should begin. You may view and/or edit your presentation.

For submission, please use a USB flash drive, CD or DVD disc and should not be protected with software.

Speaking Time

Please prepare your presentation for the allotted amount of time. Should you exceed your time limit, your presentation will automatically be stopped. Speaking time is assigned as follows (speaking + discussion time):

Keynote Lecture	25 minutes (incl. discussion)
Long oral presentation (LOP)	8 minutes plus 2 minutes discussion
Short oral presentation (SOP)	2 minutes

Prizes and Bursaries

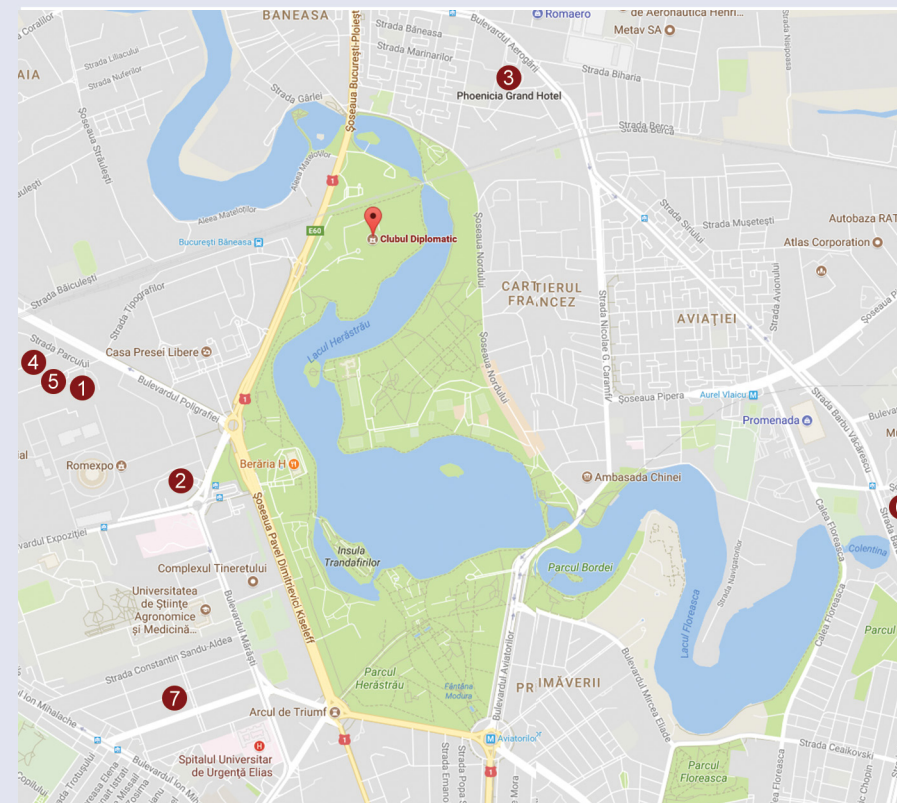
Best oral presentation	500 EUR
Poster prize	250 EUR

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| <p>1 Crowne Plaza Hotel
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013704</p> | <p>5 Ramada Bucharest Parc Hotel
3-5 B Poligrafiei Avenue, District 1 –
013704, Bucharest, Romania</p> |
| <p>2 Pullman Hotel
Adresă: Piața Montreal 10, București
011469</p> | <p>6 Hotel Caro Parc
164 Barbu Vacarescu Avenue, District
2 – 020285, Bucharest, Romania</p> |
| <p>3 Phoenicia Grand Hotel
87 Alexandru Serbanescu Avenue,
District 1, 077190 Bucharest, Romania</p> | <p>7 Domenii Plaza Hotel 4*
33 Al. Constantinescu Street, District
1 – 011471 Bucharest, Romania</p> |
| <p>4 Ramada Plaza Bucharest Hotel
3-5 Poligrafiei Avenue, District 1 –
013704, Bucharest Romania</p> | |



Welcome friends and colleagues,

It is with great pleasure that I welcome you to the 9th meeting of the European Plastic Surgery Research Council (EPSRC) held this year in Bukarest. The meeting is organized to provide a valuable means of disseminating information and ideas on evidence-based studies and translational research in all technical disciplines of plastic and reconstructive surgery as well as related fields from international experiences.

An important additional aspect of the meeting is to provide a format to interact and network with surgeons and scientists from around the world and to discuss unpublished research from and with leaders in the field. We hope that this will lead to new friendships and spur creative collaborations.

As president of the EPSRC I do not want to miss out on thanking Prof. Ion Zegrea for his commitment and strong efforts to organize the high quality scientific program. I would also like to personally thank and commend the scientific program committee for their assiduous and conscientious efforts in evaluating the large number of abstracts that were submitted. I hope that you will enjoy this year's exciting meeting and both learn from and contribute to the scientific and clinical discussions. The program represents diversified and important areas of plastic surgery with outstanding presenters. With your efforts this EPSRC meeting will be a premier international scientific forum in Plastic Surgery as have our past programs.

So please enjoy the meeting and the wonderful sites of Bucharest!
Prof. Dr. Christine Radtke, MBA, FEBOPRAS

Dear colleagues, dear friends, welcome to Romania!

It is a great pleasure and honor for me to welcome you to the 9th edition of the European Plastic Surgery Research Council (EPRSC), held on 24-27 august 2017, at the Diplomatic Club Bucharest – Romania, to continue the great tradition of EPSRC meetings.

After 7 years of continued meetings in Hamburg, on the MS San Diego, or “on the boat” as we use to call it with affection, and after the last year’s joint meeting with EURAPS in Brussels, the 9th EPSRC meeting will be a premiere, as it will be the first time when will held on it’s own, outside Hamburg. For me it is an honor to be elected as the 2017 Captain, and also it is a great responsibility to continue and why not, surpass, the high level of performance set by that the former Captains.



I cannot be more honored to introduce to you Bucharest at the end of August on a venue located on one of the most beautiful parks of Bucharest in a green and blue environment. Why blue? Because as captain I tried to sail our imaginary boat as close to water as possible as tradition imposed. The park offers also a splendid lake – Herastrau Lake. Bucharest is an ideal city to be at the end of August because of the weather and because the warmth of the people and not the least because of the Romanian plastic surgeons which will join and support you all in your trip of knowledge, science but also of having a relaxed and funny time around which is a must for making people to connect them and their ideas and which is the base of knowledge and progress.

This meeting is Lars Steintraesser’s “baby”. He had the great idea to gather the European plastic surgery researchers and scientists in a friendly and warm setting, and to put together great professors and the young students and residents to encourage making new contacts and grow future friendships. From a small meeting, it has grown over the years in the biggest European research meeting in Plastic Surgery. But now the time has come to change the setting and give other countries as well the opportunity to host it and to sail the knowledge and science in new venues and wonderful places.

I am looking forward to meeting you and spend this special experience together. I am sure that the opportunity to attend this unique, informal and interactive program will have a huge impact in the future on young surgeons and researchers. The remarkable atmosphere that made all our events to be a tremendous success in the last years, will be repeated this year in order to guide the participants to inspiration and progress. Our meeting, means to encourage both personal and professional development, and will sustain the same informal, friendly standards. It is my pledge to keep the very high scientific level this year, as well as the tradition of being an informal meeting.

Enjoy the opportunity that EPSRC offers, for surgeons and scientists around the world, to meet, give birth to wonderful friendships, share experiences, knowledge and values for the same cause. Discussions regarding unpublished researches with leaders in the field, aim to advance the Plastic, Reconstructive and Aesthetic Surgery research community and their work.

Ion Zegrea MD PhD
 EPSRC Captain 2017
 University of Medicine and Pharmacy Carol Davila, Bucharest, Romania

Friday, August 25, 2017		Saturday, August 26, 2017	
8:00	Opening Ceremony p.14	8:00	Keynote VIII Interface: The Bionic Man - Not Too Far Away p.20
8:15	Keynote I The Past, Present and Future of Breast Reconstruction p.14	8:25	Session VI - Nerve p.20
8:40	Session I - Breast Surgery p.14	9:05	Keynote IX Nerve Regen: Recent developments of reconstructive strategies and tissue engineering of peripheral nerve p.20
9:20	Keynote II Spinal Reconstruction Utilizing Vascularized Bone p.14	9:30	Coffee Break p.20
9:45	Coffee Break p.15	10:00	Keynote X Innovations in Head & Neck surgery: from allotransplantation & 3D printing towards tissue engineering p.20
10:30	Keynote III Reconstruction: Designing a better tissue prostheses for abdominal wall reconstruction p.15	10:25	Session VII - Regeneration p.20
10:55	Session II - Microsurgical Reconstruction p.15	11:15	PANEL: Microsurgical Training in Romania p.21
11:45	Keynote IV Tolerance to Vascularized Composite Allografts: Are We Any Closer to Seeing A World Without Chronic Immunosuppression? p.15	12:00	Lunch Break p.21
12:10	Lunch Break p.15	13:00	PSRC Highlights Session p.21
13:00	Keynote V Stem Cells: Plastic regenerative surgery – clinical application and research aspects reflected in personal practice p.16	13:30	Keynote XI Why, when and how local perforator flaps in reconstructive surgery p.22
13:25	Session III - Stem Cells p.16	13:55	Session VIII - Microsurgical Advances and Lymphatic Surgery p.22
14:05	Keynote VI Exploiting Adipose Tumor Tropism to Attack Breast Cancer p.16	14:35	Keynote XII Creating an ethical supply of human primary sensory neurons for translational in vitro research p.22
14:30	Coffee Break p.16	15:00	Coffee Break p.22
15:00	Session IV - Oncology/Cancer p.16	15:35	Keynote XIII Mechanical Tension Principles Related to Hernia Recurrence and Hernia Mesh Performance p.23
15:40	Keynote VII Extremity Recon: Perforator flaps of the lower limb p.17	16:00	Keynote XIV Anatomical study of the retroauricular fascial complex and its application in rhinoplasty p.23
16:05	Session V - Burns p.17	16:25	Session IX - Aesthetics p.23
16:45	Short Orals p.17	17:05	Keynote XIV Looking to the Future: Surgical Applications of Tissue Engineering and 3D Printing p.23
17:21	Business Meeting p.19	17:30	Session X - Craniofacial/Cleft p.23
19:00	Social Dinner p.19	18:10	Keynote XV Abdominal Wall: "Evidence based abdominal reconstruction" p.24
		18:35	Closing Ceremony & Awards p.24
		19:00	Social Dinner p.24

 Session	 Coffee Break	 PSRC Highlights
 Keynote	 Short Orals	 Session
 Microsurgical	 Business Meeting	 Closing Ceremony &
 Training in Romania	 Social Dinner	 Awards

**08:00-
08:15** **Opening Ceremony**

Welcome from EPSRC President
Christine Radtke (Vienna/AT)

Welcome from the Chairman and Captain
Ion Zegrea (Bucharest/RO)

Welcome from the Chair of the 63th Annual Meeting of the Plastic Surgery
Research Council (PSRC)
Timothy W. King (Birmingham/US)

**08:15-
08:40** **Keynote Lecture I**
The Past, Present and Future of Breast Reconstruction

Philippe Blondeel – Ghent University (Belgium)

**08:40-
09:20** **Session I: Breast Surgery**

Chairs Chairs: P. Blondeel (Gent/BE), R. Largo (Houston/USA), R. Jecan
(Bucharest/RO)

08:40 A Post – Operative Protocol for Autologous Free Flap Breast Reconstruction
LOP01 Optimizing Resources and Patient Safety
*Allison Haley, Tobias J Bos, Brian H Cho, Hannah M Carl, Benjamin Ostrander,
Rachel A Pedreira, Gedge D Rosson, Michele A Manahan, Justin M Sacks*

08:50 An algorithmic approach to reduce the morbidity in breast reconstruction with
LOP02 tissue from the lower abdomen
Raphael Wenny

09:00 Effectiveness of local antiesthetic pain catheters on massive weight loss
LOP03 patients undergoing abdominoplasty – a comparative study
Salvatore Giordano, Panu Uusalo, Tarja Niemi, Petteri Lankinen

09:10 Regenerative plastic surgery in postmastectomy breast reconstruction –
LOP04 evolution of the concept reflected in current personal practice
Dana Jianu, Oltjon Cobani, Ioana Ghiurco, Marian Turbatu, Mihaela Vartic

**09:20-
09:45** **Keynote Lecture II**
Spinal Reconstruction Utilizing Vascularized Bone
Justin M. Sacks – Johns Hopkins (USA)

**09:45-
10:30** **Coffee Break**

**10:30-
10:55** **Keynote Lecture III**
**Reconstruction: Designing a better tissue prostheses for abdominal wall
reconstruction**
Bill W. Kuzon – University of Michigan (USA)

**10:55-
11:45** **Session II: Microsurgical Reconstruction**

Chairs W. Kuzon (Ann Arbor/USA), D. Mathes (Denver/USA), G. Verega (Chisinau/
MO)

10:55 Bridging the Gap – Extending Free Flap Pedicle Length with Interposition Vein
LOP05 Grafts and Arteriovenous Loops
*Tobias J Bos, Nicholas A Calotta, Michelle Y Seu, Brian H Cho, Aladdin H
Hassanein, Gedge D Rosson, Damon S Cooney, Justin M Sacks*

11:05 The microvascular „tube-in-tube“ concept for penile construction in female to
LOP06 male transsexuals
Clement Staud

11:15 Chimeric flap based on epigastric vessels. New model in rats
LOP07 *Stefan Morarasu, Bianca Codrina Morarasu, Corneliu-George Coman, Ioannis
Gardikiotis, Luigi Annacontini, Dragos Pieptu, Nicolae Ghetu*

11:25 Experimental Models for Immunological Studies in Vascularized Composite
LOP08 Allotransplantation
*Andreea Grosu-Bularda, Dragos Zamfirescu, Andrei Stefanescu, Marius
Popescu, Ioan Lascar*

11:35 Microsurgical Models For Vascularized Composite Allotransplants In Rats
LOP09 *Dragos Zamfirescu, Andrei Stoian, Andreea Bularda, Marco Lanzetta*

**11:45-
12:10** **Keynote Lecture IV**
**Tolerance to Vascularized Composite Allografts: Are We Any Closer to Seeing
A World Without Chronic Immunosuppression?**
David Mathes – University of Colorado (USA)

**12:10-
13:00** **Lunch Break**

**13:00-
13:25 Keynote Lecture V**

13:25 Stem Cells: Plastic regenerative surgery – clinical application and research aspects reflected in personal practice
Dana Jianu – ProEstetica Clinic (Romania)

**13:25-
14:05 Session III: Stem Cells**

Chairs T.King (Birmingham/USA), D. Jianu (Bucharest/RO), D. Duscher (Munchen/DE)

13:25 The influence of Adipose derived Stem Cell on nerve regeneration
LOP10 Vlad Bloanca, Zorin Crainiceanu, Ana Maria Campean, Alexandru Pesecan, Tiberiu Bratu

13:35 Efficiency of fibrocell and bone marrow or adipose- derived stromal vascular fraction on severe pathologic scar formation in burn
LOP11 Güvercin E, Demirel O, Aköz Saydam F, İlker B, Bozkurt M

13:45 ITGAV and ITGA5 diversely regulate proliferation and adipogenic differentiation of human adipose derived stem cells
LOP12 Morandi EM, Verstappen R, Zwierzina ME, Geley S, Pierer G, Ploner C

13:55 A Comparison of the regenerative gene expression in ASCs derived from UAL, SAL and Abdominoplasty samples
LOP13 Matthias M Aitzetmüller

**14:05-
14:30 Keynote Lecture VI**

14:30 Exploiting Adipose Tumor Tropism to Attack Breast Cancer
Scott T. Hollenbeck – Duke University (USA)

**14:30-
15:00 Coffee Break****15:00-
15:40 Session IV: Oncology/Cancer**

Chairs J. Sacks (Baltimore/USA), S. Hollenbeck (Durham/USA), N. Ghetu (Iasi/RO)

15:00 Trendy tattoos - maybe a serious health risk?
LOP14 Paprottka FJ, Noah EM, Hebebrand D

15:10 Estimation of health care system costs in treating non melanoma skin cancer
LOP15 Cozma Cristina-Nicoleta, Raducu Laura, Avino Adelaida, Sinescu Ruxandra Diana, Jecan Radu-Cristian

15:20 Growth inhibition after combination drug treatment for 3D co-culture in wild type and V600E mutant BRAF melanoma tumour cells
LOP16 Alina Chelmuş, Dragoş Pieptu, Eric Tang

15:30 Life-saving surgical excision of giant malignant melanoma metastasis
LOP17 Dumitrache S., Slavescu D., Capatina R., Gheorghe A.A., Iacob I., Giuglea C.

**15:40-
16:05 Keynote Lecture VII**

16:05 Extremity Recon: Perforator flaps of the lower limb
Grigore Verega – Nicolae Testemiţanu University (Republic of Moldova)

**16:05-
16:45 Session V: Burns**

Chairs W. Kuzon (Ann Arbor/USA), O. Vermesan (Bucharest/RO), L. Steinstraesser (Oldenburg/DE)

16:05 Vascularized Composite Allotransplantation as Therapeutic Strategy for Burned Patients
LOP18 Andreea Grosu-Bularda, Oana Vermesan, Luana Lazarescu, Razvan Teodoreanu, Ioan Lascar

16:15 Standardized method for burn area evaluation in rats using tattoo and 2D digital planimetry
LOP19 TT Scutaru, CG Coman, M. Danciu, GV Necula, MM Năstase, S Morăraşu, D. Pieptu, N. Gheţu

16:25 Women Do Worse Than Men? Gender Dimorphism in Burn Outcome
LOP20 Ederer IA, Hacker S, Salameh O, Radtke C, Pauzenberger R

16:35 Fluid resuscitation of Bariatric Burns: Assessing the value of the Neaman Scale
LOP21 Ojas Pujji

**16:45-
17:21 Short Orals**

16:45 Vascularized bone marrow transplantation model in rats as an alternative to conventional cellular bone marrow transplantation
SOP01 D Zamfirescu, A Bularda, A Stefanescu, A Stoian, M Simionescu, M Lanzatta

- 16:47
SOP02 The impact of two different osteosynthesis methods on fracture healing—experimental models
Tiberiu Paul Neagu, Ion Zegrea, Cristian Cobilinschi, Serban Arghir Popescu, Cristian Radu Jecan, Ioan Lascar
- 16:49
SOP03 The Profunda Femoral Artery Perforator flap: an anatomical and cadaveric study
Velicanu Ana
- 16:51
SOP04 Functional reconstruction of complex hand defects by vascularized femoral periosteum flap
Andrej Ring
- 16:53
SOP05 Facial Reanimation with Free Latissimus Dorsi Muscle Transfer, a comparative study between lateral and supine approach
Wael Ayad, Amr Elbatawy
- 16:55
SOP06 A cheap method of evaluating pre and postoperative the vascularization of cutaneous flaps
Raducu Laura, Cozma Cristina-Nicoleta, Balcangiu-Stroescu Andra Elena, Sinescu Ruxandra Diana, Jecan Radu-Cristian
- 16:57
SOP07 Management of non-healing complex wounds in patients with autoimmune disorders and rare seen diseases via bone marrow aspirate concentrate
Demirel O, Güvercin E, Aköz Saydam F, İlker B, Bozkurt M
- 16:59
SOP08 Negative pressure wound therapy to the dura
Ojas Pujji
- 17:01
SOP09 Coverage of a chronic chest wound after cardiac surgery – case report
Dumitrache S., Vasile R., Burlacu E., Coman C.F.
- 17:03
SOP10 The consequence of the crush syndrome on the diabetic patients
Viorica Mihaluta, Rodica Iordachescu, Alina Stoian, Mihai Garbuz, Alina Panciuc, Grigore Verega
- 17:05
SOP11 Preliminary Studies in Abdominal Wall Allotransplantation
Andreea Grosu-Bularda, Luana Lazarescu, Alexandru Stoian, Ioan Lascar
- 17:07
SOP12 Our training ladder for surgical specialties
Ioannis Gardikiotis, Corneliu George Coman, Vlad Gabriel Necula, Stefan Morarescu, Tabita-Timeea Scutaru, Nicolae Ghetu

- 17:09
SOP13 Model of sciatic nerve regeneration in Wistar Albino rats
Anamaria Victoria Bumbu
- 17:11
SOP14 Temporoparietal fascial flap for palate reconstruction in cleft patients
Enrique Olivares
- 17:13
SOP15 Validity of virtual 3D planning in management of maxillary hypoplasia for cleft lip palate patients
Mohamed Osama Ouf
- 17:15
SOP16 Scar transfer, an innovation
Tarek Elbanoby, Gaber Ali, Khallad Sholkamy
- 17:17
SOP17 Correction of nose defects using hyaluronic acid: results and complications
Valeriu Ardeleanu, Cristina Nicoleta Cozma, Laura Raducu, Cristian Radu Jecan
- 17:19
SOP18 Reconstruction of combined thoracic and spine defects
Daniel Murariu, Lei Feng, Stephanie Nemir, Patrick Garvey, Charles Butler, Alexander Mericli
- 17:21-
18:30 **Business Meeting**
- 19:00-
23:00 **Social Dinner**

08:00-
08:25 **Keynote Lecture VIII**

Interface: The Bionic Man: Not Too Far Away
Paul Cederna – University of Michigan (USA)

08:25-
09:05 **Session VI: Nerve**

Chairs P. Cederna (Ann Arbor/USA), C. Radtke (Wien/AT), D. Zamfirescu (Bucharest/RO)

08:25 Holey silk fibroin nerve conduits improve vascularization of the regenerating rat sciatic nerve
LOP22
M. Kerbl, N. Swiadek, P. Heimel, S. Nürnberger, R. Hopf, J. Heinzl, A. Nogradi, A. Teuschl, C. Radtke, T. Hausner, H. Redl, D. Hercher

08:35 Mitigation of Postamputation Pain with the Prophylactic Regenerative Peripheral Nerve Interface
LOP23
Kubiak CA, Cederna PS, Kemp SW, Kung TA

08:45 A Quantitative Analysis of the Sensory and Motor Fibres of the Brachial Plexus in Man
LOP24
Bernhard Gesslbauer, Marie Hader, Aidan D. Roche, Dario Farina, Roland Blumer, Oskar C. Aszmann

08:55 Preclinical and clinical approaches in peripheral nerve surgery
LOP25
Tim Kornfeld, Christine Radtke

09:05-
09:30 **Keynote Lecture IX**

Nerve Regen: Recent developments of reconstructive strategies and tissue engineering of peripheral nerve
Christine Radtke – Vienna University (Austria)

09:30-
10:00 **Coffee Break**10:00-
10:25 **Keynote Lecture X**

Innovations in head & Neck surgery: from allotransplantation & 3D printing towards tissue engineering
Jan Vrancx – Leuven University (Belgium)

10:25-
11:15 **Session VII: Regeneration**

Chairs H. Levinson (Ann Arbor/USA), A. Hart (Glasgow/UK), A. Nistor (Timisoara/RO)

10:25 The regenerative capability of the urodele amphibians and its potential for plastic surgery
LOP26
Bernhard Gesslbauer, Christine Radtke

10:35 Silk a versatile biomaterial for clinical translation
LOP27
Tim Kornfeld, Christine Radtke

10:45 Zettaskin – the first trilaminar tissue engineering skin template – preliminary biomechanical, biocompatibility and fibroblasts and keratinocytes culture cells survival testing
LOP28
D Zamfirescu, M.G. Albu Kaya, I. Titorencu, R. Tutuianu, V. Pruna, I Muraru, A Beedasy, M. Simionescu

10:55 Platelet-rich plasma vs. fetal bovine serum in engineering of axially-vascularized osteogenic grafts from human adipose-derived cells to treat avascular necrosis of bone
LOP29
Tarek Ismail, Rik Osinga, Atanas Todorov Jr., Alexander Haumer, Laurent A. Tchang, Christian Epple, Nadia Menzi, René D. Largo, Alexandre Kaempfen, Ivan Martin, Dirk J. Schaefer, Arnaud Scherberich

11:05 Sericin Removal from Bombyx Mori Silk Fibers – Application in Construction of Peripheral Nerve Implants
LOP30
Paul Liebmann, Fritz Vollrath, Christine Radtke

11:15-
12:00 **PANEL: Microsurgical Training**

Alexandru Nistor – Timisoara
Dragos Zamfirescu – Bucuresti
Ioannis Gardikiotis – Iasi
Alexandru Georgescu – Cluj

12:00-
13:00 **Lunch Break**13:00-
13:30 **PSRC Highlights**

Clinical Award: Joseph Catapano, "Documentation of Improved Ocular Surface Health after Corneal Neurotisation and Reinnervation Using Magnetoencephalography And Histology"

Shenaq Award: Joseph Firriolo, "Reduction Mammoplasty Improves Quality-of-Life in Adolescents with Macromastia: A Longitudinal Cohort Study"

Hardesty Award: Chiaki Komatsu, "In Vivo Evaluation Of The Retina And Optic Nerve After Whole Eye Transplantation Using Optical Coherence"

13:30- **Keynote Lecture XI**

13:55 Why, when and how local perforator flaps in reconstructive surgery
Alexandru Georgescu - Iuliu Hatieganu University (Romania)

13:55- **Session VIII: Microsurgical Advances and Lymphatic Surgery**
14:35

Chairs J. Sacks (Baltimore/USA), A. Georgescu (Cluj/RO), S. Giordano (Turku/FI)

13:55 How Do Arteriovenous Loops Induce Angiogenesis? Flow-Dependent
LOP31 Alterations of miRNA and Gene Expression Profiles in a Rat AV Loop Model
Dominic Henn, M.D.

14:05 Restoration of lymphatic function: free vascularized lymph node transfer with
LOP32 afferent lymphaticolymphatic and afferent lymphatico-nodular anastomosis
T. Aung, M. Ranieri, P. Lamby, R. Müller-Wille, W.A. Wohlgemuth, Katja Evert, L. Prantle1, J. Dolderer

14:15 Supermicrosurgical treatment of persistent lymphorrhea with reconstructive
LOP33 lymphovenous anastomosis
Andrej Ring

14:25 Vascularized lymph node transfer from the terminal ileum for reconstruction of
LOP34 lymphatic extremity drainage as treatment for secondary chronic lymphedema
Andrej Ring

14:35- **Keynote Lecture XII**

15:00 Creating an ethical supply of human primary sensory neurons for translational
in vitro research
Andrew Hart – Glasgow University (United Kingdom)

15:00- **Coffee Break**
15:35

15:35- **Keynote Lecture XIII**
16:00 Mechanical Tension Principles Related to Hernia Recurrence and Hernia Mesh
Performance
Howard Levinson – Duke University (USA)

16:00- **Keynote XIV**
16:25 Anatomical study of the retroauricular fascial complex and its application in
rhinoplasty
Nicolae Antohi – Antohi Medical Center (RO)

16:25- **Session IX: Aesthetics**
17:05

Chairs B. Hendrickx (Bruxelles/BE), N. Antohi (Bucharest/RO), I. Zegrea (Bucharest/RO)

16:25 The role of split Costochondral Graft in the restoration of nasal dorsum in post-
LOP35 traumatic nasal deformities
Tarek Elbanoby, Gaber Ali, Amr Elbatawy

16:35 Effect of montelukast on capsular contracture after breast augmentation: a
LOP36 comparative study
Salvatore Giordano

16:45 Skin rejuvenation through HIF-1 α upregulation – A new treatment paradigm in
LOP37 anti-aging medicine
Dominik Duscher

16:55 Reduction mammoplasty in obese patients results in increased risk of post-
LOP38 operative complications: a comparative study on 756 patients
Salvatore Giordano

17:05- **Keynote Lecture XV**
17:30 Looking to the Future: Surgical Applications of Tissue Engineering and 3D
Printing
Timothy W. King – UAB School of Medicine (USA)

17:30- **Session X: Craniofacial/Cleft**
18:10

Chairs T.King (Birmingham/USA), R. Largo (Houston/USA), D. Murariu (Iasi/RO)

17:15 Pain Management for Non-Syndromic Craniosynostosis: Adequate Analgesia
LOP39 in a Pediatric Cohort?

*Alexandra Macmillan MA MBBS, Deepa Kattail MD, Leila Musavi BA, Rachel
Pedreira BS, Regina Cho BS, Joseph Lopez MD MBA, Amir Dorafshar MBChB*

17:25 Le Fort Fractures in Children – Do They Exist?

LOP40 *Alexandra Macmillan MA MBBS, Joseph Lopez MD MBA, JD Luck BA,
Muhammad Faateh MBBS, Edward Davidson MA MD, Richard Redett MD,
Anthony Tufaro DDS MD, Paul Manson MD, Amir Dorafshar MBChB*

17:35 Craniofacial Distraction in Management of Anterior Plagiocephaly: A novel idea
LOP41 and A Systematic Review of the Literature

Tarek Elbanoby, Amr Elbatawy, Gaber Aly

17:45 3D printing guided surgery in the treatment of unicoronal craniosynostosis

LOP42 *Tarek Elbanoby, Amr Elbatawy, Gaber Aly, Mohab Sharafuddin*

18:10- **Keynote Lecture XV**

18:35 **Abdominal Wall: Evidence based abdominal reconstruction**

Daniel Murariu – Grigore T. Popa University (Romania)

18:35- **Closing Ceremony & Awards**

18:55

19:00- **Social Dinner**

00:00

EPSRC Lighthouse Endowment Fund

The missions of the EPSRC Lighthouse Endowment Fund are the delivery of high-quality patient care through the contribution to innovations in medicine through basic and translational research and clinical outcome studies, and the education of medical students, postgraduate trainees, residents and consultants to insure an adequate supply of academic plastic surgeons for the future. This Society is a non-profit organization managed by and for the benefit of the young plastic, reconstructive and aesthetic surgery research community.

The annual EPSRC meeting will offer an exciting opportunity for young plastic surgery researchers to discuss their latest work and future challenges in a uniquely informal, interactive format for basic science and clinical outcome research. The EPSRC meeting will provide a valuable means of disseminating information and ideas in a way that cannot be achieved through the usual channels of communication – publications and presentations at large scientific meetings.

This year we continue with securing the financial stability of the European Plastic Surgery Research Council with the help of the EPSRC Lighthouse Endowment Fund. EPSRC Lighthouse Fund Donors have committed themselves to the ongoing support of your new generation of Plastic Surgeon Scientists in Europe. The Executive Board of the EPSRC hereby asks professionals, industrial partners and patients for financial support of this research organization to translate innovation from the bench to the bedside for the patients' benefit.

EPSRC is very grateful to the EPSRC Lighthouse Fund Donors for their active support to keep this research endeavor going.

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The microsurgical corner contains five fully-equipped work-stations, bringing the fascinating world of microsurgery up, close and personal for all EPSRC attendees. Young colleagues, willing to experience microsurgery LIVE, will have the chance to perform microvascular anastomosis using ex-vivo models (chicken legs), throughout the meeting.

Working with top-quality magnification (Carl Zeiss GmbH), microsurgical instruments and sutures (S & T AG) everyone interested to attain microsurgical techniques will find here besides expert advice from our faculty, all the informations needed regarding microscopes, instrumentation, microsurgical sutures and so on.

Important

This is not a practical course but only a booth offering a unique hands-on experience in performing microvascular anastomosis. No diplomas of any kind will be issued.

Places will be distributed on the "first come, first served" basis for all EPSRC attendees interested to experience microvascular anastomosis.

The microsurgical corner will be only available during the official congress breaks.

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For registration, please sign in at the Registration Desk.

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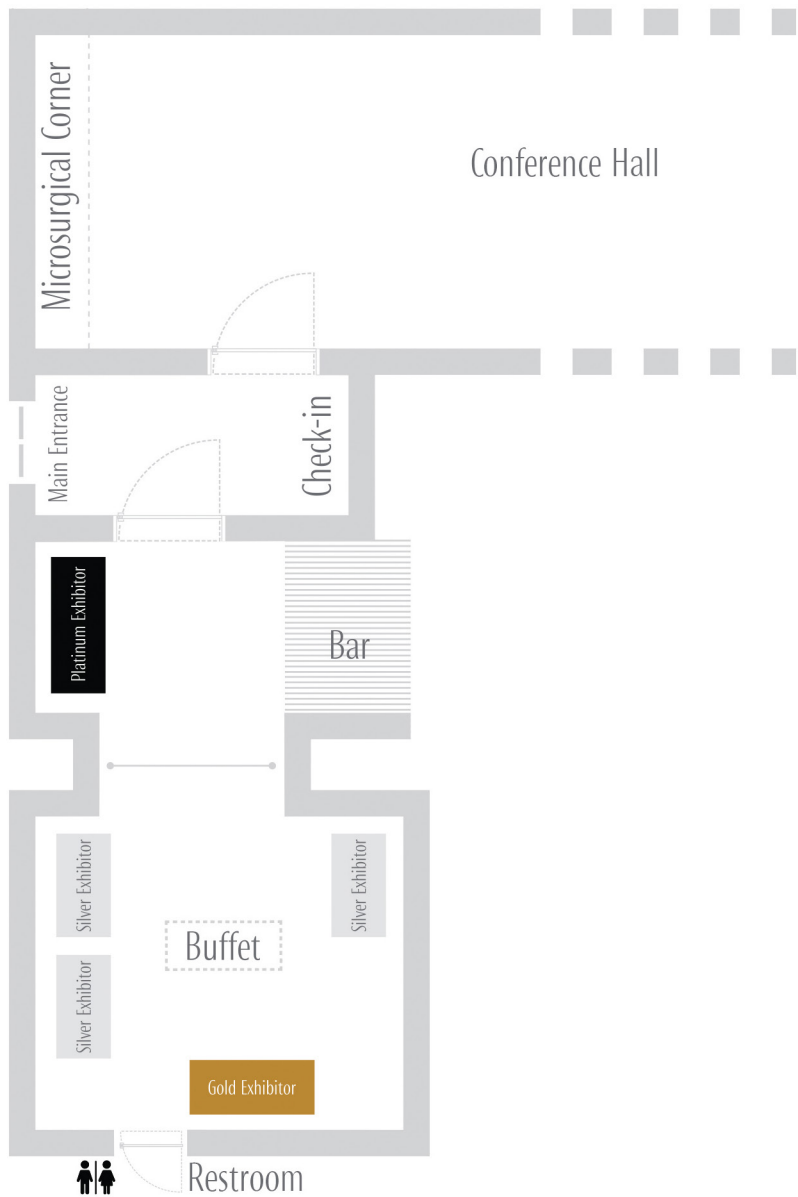


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Welcome Reception

EPSRC invites you to kick off the Annual Meeting on Thursday, August 24, 2017 with the Welcome Reception "Roof Top Cocktail Party" at Elysium Clinic. Join us for a casual Meeting and a wonderful view.

Date Thursday, August 24, 2017
Time 20:00 – 23:00
Venue Elysium Clinic, 25 Pictor Ion Negulici Street, 5 floor, 011942 Bucharest
Costs Costs included for Participants, 35 EUR for Accompanying persons

Social Dinner

You are invited to round off the scientific program in casual atmosphere. Take some time to refresh contacts or even to make new one! Food, music and beverages are provided.

Date Friday, August 25, 2017
Time 19:00 – 00:00
Venue Clubul Diplomatic, 2B Bucuresti-Ploiesti Street, 077190 Bucharest
Costs Costs included for Participants, 35 EUR for Accompanying persons

Date Saturday, August 26, 2017
Time 19:00 – 00:00
Venue Clubul Diplomatic, 2B Bucuresti-Ploiesti Street, 077190 Bucharest
Costs Costs included for Participants, 35 EUR for Accompanying persons

Program after the Social Dinner

Date Saturday, August 26, 2017
Time 00:00
Venue To be announced
Costs Not included for Participants and Accompanying persons

Farewell Pool Brunch

Date Sunday, August 27, 2017
Time 11:00
Venue Clubul Diplomatic the pool side, 2B Bucuresti-Ploiesti Street, 077190 Bucharest
Costs Costs included for Participants, 20 EUR for Accompanying persons

Registration and Confirmation

Registration is subject to capacity limitations. Registration must include the name of any accompanying person to ensure their inclusion into the planning of the social program. Upon receipt of registration invoice or confirmation, registration is considered official and effectual. This document is a valid VAT invoice which may be submitted to the local tax and revenue office for tax purposes.

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Fees for the scientific Program of the event, the social evening and the social program will be charged in the name and on behalf of the company Infnit PR & EVENTS inclusive the statutory VAT rate of 19% (as of 2010). All fees are due upon receipt of the registration invoice or confirmation form. Transfer payments must include the name of the participant and the invoice number, otherwise they will not be accepted. All major credit cards are accepted.

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Event fees and day tickets include participation in the scientific program only. Included in this fee are a program book (including the abstracts), tickets for the social program, a name tag and a certificate of attendance. These items are generally handed out at the venue.

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LOP01: A Post-Operative Protocol for Autologous Free Flap Breast Reconstruction Optimizing Resources and Patient Safety

**Allison Haley, Tobias J Bos, Brian H Cho, Hannah M Carl, Benjamin Ostrander, Rachel A Pedreira, Gedge D Rosson, Michele A Manahan, Justin M Sacks*

Background:

There is little agreement in the literature regarding post-operative protocols for autologous free flap breast reconstruction patients. In the current healthcare environment, it is imperative for institutions to utilize high demand resources, such as the Intensive Care Unit (ICU), responsibly. Our study aims to show a three-day post-operative protocol for autologous free flap breast reconstruction patients is more cost and resource effective than protocols with longer length of stay (LOS) or overutilization of the ICU, and continues to maintain excellent clinical outcomes.

Methods:

Literature was reviewed for validation of tissue oximetry use in free flap monitoring. Institutional costs for our post-operative pathway were collected. Using an IRB approved REDCap database, we performed standardized retrospective chart review for demographics, LOS (time from admission to discharge) and short term complications on consecutive patients who underwent autologous free flap breast reconstruction at our institution from January 2013 to August 2014 and compared these to the literature.

Results:

Tissue oximetry devices have been demonstrated to reliably predict early flap compromise. At our institution, patients are cared for immediately on the general surgical floor, which costs \$1827/day compared to the national average for monitoring a non-mechanically ventilated patient in the ICU of

\$6667/day. One tissue oximetry probe costs \$713. Mean LOS for patients at our institution was 3.61 days (SD=0.59), excluding 9 outliers with complications necessitating longer stay. Our protocol has been standard of care for over 12 years and our LOS is shorter than those reported in the literature, even in experimental settings (p=0.384).

We reviewed 153 consecutive patients with a total of 239 free flaps using our post-operative protocol. The mean age was 50 years (SD=10.2) and mean BMI was 29.4 (SD=5.2). Our institution's rate of flap failure was not significantly different from the published national rate (p=0.367), while unplanned reoperation and systemic complications were significantly lower than the published national rate (p=0.001 and p<0.001, respectively).

Conclusions:

The autologous breast reconstruction post-operative protocol initiated by our institution is more cost and resource effective than protocols utilizing the ICU. Immediate post-operative care on a general surgical floor with tissue oximetry does not increase the risk of flap failure, unplanned reoperation or systemic complications. Our protocol serves as a streamlined approach that allows reallocation of valuable resources and minimizes healthcare costs without compromising patient safety, and should be considered for adoption at other institutions where autologous free flap breast reconstruction is performed.

LOP02: An algorithmic approach to reduce the morbidity in breast reconstruction with tissue from the lower abdomen

**Raphael Wenny*

Introduction:

Autologous breast reconstruction utilizing

tissue from the lower abdomen is considered gold standard. Goal of every reconstruction, apart from recreating a symmetric breast mound, should be the reduction of morbidity in the donor site as well as the recipient site.

Patients & Methods:

Between January 2008 and May 2017, 98 patients underwent breast reconstruction with tissue from the lower abdomen. In 24 patients, the reconstruction was bilateral. With the aid of a prospectively maintained database, all morbidity-reducing measures were analyzed and an algorithm was created.

Results:

In the study period, 132 flaps from the lower abdomen were transplanted. We had five total flap losses (3.7%). Regarding flap type, there were 3 TRAM-, 10 ms-TRAM, 111 DIEP- and 8 SIEA-flaps. Recipient vessels were the internal mammary vessels in 100%. Removal of parts of costal cartilage was necessary in 27 patients, the intercostal approach was chosen in 83 cases and the IMA-perforator could be selected in 12 cases.

Conclusion:

The lower abdomen constitutes unequivocally the gold standard as the donor choice in autologous breast reconstruction. By implementing technical modifications in dealing with the donor site as well as the recipient site, overall morbidity may be reduced significantly. The meaningful adoption of these techniques will lead to a quicker postoperative recovery with no expenses on safety and the aesthetic result.

LOP03: Effectiveness of local anaesthetic pain catheters on massive weight loss patients undergoing abdominoplasty: a comparative study

**Salvatore Giordano, Panu Uusalo, Tarja Niemi, Petteri Lankinen*

Introduction:

It has been documented that the use of local anaesthetic pain catheters for abdominal donor site analgesia in patients undergoing free lower abdominal flap breast reconstruction is associated with a decreased use of narcotics and antiemetic medicaments, and shorter hospital stay. We evaluated the efficacy of pain pump catheters on massive weight loss patients undergoing body-contouring abdominoplasty.

Methods:

Patients underwent primary abdominoplasty at a single center were retrospectively reviewed. Bodylift, lipoabdominoplasties, panniculectomies, secondary operations and pain management with patient controlled epidural analgesia were excluded. There were a total of 123 patients, whom 61 were eligible for this study. Patients were divided into two groups on basis of the pain pump use: pain pump group (24 patients) and the control group (37 patients). Patient demographics, perioperative parameters, postoperative complications, total morphine equivalents and hospital stay were compared. Primary outcome was the total amount of opioid use during the hospital stay. Secondary outcomes were the length of hospital stay and early postoperative complications (<30 days).

Results:

The two groups were comparable on demographics, operative time and tissue resection weight. A significantly decreased use of opioids was observed after using pain pump versus control (14.0±13.9 mg vs 74.6±73.3 mg, p<0.001). Similarly, the length of hospital stay was significantly shorter among the pain pump group (3.1±1.1 days vs 3.8±1.0 days, p=0.023). No significant differences were detected in early postoperative complications. Although not statistically significant, a tendency to higher seroma rate was found among the pain pump

group (25.0% vs 13.5%, $p=0.315$).

Conclusions:

On massive weight loss patients undergoing abdominoplasty, the use of local anaesthetic pain catheters is associated with a decreased use of opioids and might decrease the hospital stay. Further studies are needed to validate this treatment modality.

LOP04: Regenerative Plastic Surgery in Postmastectomy Breast Reconstruction – Evolution of the Concept Reflected in Current Personal Practice

**Dana Jianu, Oltjon Cobani, Ioana Ghiurco, Marian Turbatu, Mihaela Vartic*

Background:

The concept to restore the breast postmastectomy through regenerative surgery with fat tissue and implants or to regenerate it solely with fat tissue and reverse expansion (RE) is not new but still a rare procedure.

In this respect, we learned and we'd like to share our experience to obtain predictable and pleasant results – due to a better understanding of the concept and new methodology.

Material and method:

Since 2003, the team of the Department of Plastic Surgery of ProEstetica Hospital has been started the composite regenerative breast surgery with fat graft, internal expansion and silicone prosthesis - 15 cases. From November 2010 till June 2017 were performed other 20 cases of regenerative reconstructions after mastectomy based on RE expansion (four cases combination). As a consequence, this paper is presenting a comparative study between the two methods of breast reconstruction with and without RE. All stages with reverse expansion surgical technique and imagistic follow-up are summarized.

Results:

The results are presented by stages, commented with concision about difficulties and challenges encountered. A series of pictures of cases is shown.

Conclusion:

1. The regenerative breast surgery (RBS) reconstruction and aesthetics is a more gentle yet efficient method when compared with distant flaps.
2. The RE is ensuring optimal conditions for a better fat survival even in the very scarce vascularisation post radiotherapy. On the contrary, the absence of the RE could lead to the failure of surgical augmentation. Despite multiple advantages, the regenerative surgery of the breast is currently less popular and less accepted by our plastic and oncologic colleagues or from other specialties.
3. The limits and advantages of RBS are also presented.

LOP05: Bridging the Gap: Extending Free Flap Pedicle Length with Interposition Vein Grafts and Arteriovenous Loops

**Tobias J Bos, Nicholas A Calotta, Michelle Y Seu, Brian H Cho, Aladdin H Hassanein, Gedge D Rosson, Damon S Cooney, Justin M Sacks*

Background:

Free tissue transfer in complex oncological and traumatic defects may require extension of the vascular pedicle to reach recipient vessels and complete microvascular anastomosis. This can be accomplished by using vein grafts as a bridging medium. When interposition vein grafts (IVG) are needed for extension of both the arterial and venous conduit, a temporary arteriovenous fistula (AV loop) can be constructed as an intermediary step. The purpose of this study is to assess clinical outcomes for utilization

of vein grafts and arteriovenous loops in the context of free flap reconstruction.

Methods:

Following approval by our Institutional Review Board, we retrospectively analyzed patients requiring free flap reconstruction between March 2007 and June 2017. All patients utilizing any vein graft in this context were identified. Data collection included demographic, medical, surgical, and outcome variables.

Results:

A total of 90 IVG were used in 56 patients, receiving a total of 54 free flaps. Reconstructive sites included: head/neck (29; 51.8%), breast (13; 23.2%), upper extremity/trunk (9; 16.1%), and lower extremity (5; 8.9%). Twenty out of 26 AV loops created received flaps (11 immediate; 9 staged). Five AV loops thrombosed in staging and were discarded; one patient died in staging due to medical comorbidity. The duration of staging ranged from 1 to 59 days (median=4). Forty-two procedures (44 flaps) utilized vein grafts in the index flap surgery, of which 10 (11 flaps) were taken back for emergent flap salvage (2 AV loops, 8 IVG group). Seven cases (8 flaps) were successfully salvaged. In 13 cases (14 flaps) IVG was utilized for free flap salvage, with a 78.6% successful flap salvage rate ($n=11$). Out of 54 flaps overall, 11 flap failures occurred (20.3%; 95% CI 10.6-33.5%). All flap failures occurred in the patients that used any IVG (with or without AV loop) for immediate reconstruction or in salvage procedures utilizing IVG. Of the nine staged AV loops that received flaps, flap survival was 100%.

Conclusions:

IVG and AV loops offer practical solutions for pedicle lengthening in order to successfully perform microvascular anastomosis, but increase risk of take-back and flap failure when utilized in the index flap surgery. Our data demonstrate that staged AV loops may

be superior to immediate AV loops, owing to a de facto pre-identification of patients who may otherwise develop a flap complication after immediate reconstruction. Additionally, IVG appears to be an especially effective tool in cases of free flap salvage.

LOP06: The microvascular „tube-in-tube“ concept for penile construction in female to male transsexuals

Content

**Clement Staud*

Introduction:

In most female-to-male transsexual patients the construction of an aesthetic and functional neo-phallus after penile amputation represents the terminal step in a series of invasive and non-invasive procedures. For this surgery, a lot of different techniques have been described. Among these microsurgical free-flap phalloplasties remain the most popular method in clinical routine.

For many years, the radial forearm free flap has been considered to be the best procedure. With the aim to reduce donor site morbidity and to optimize functional outcome many other flaps have been developed. Therefore, pedicled flaps have shown to be reliable and to decrease the risk of total failure.

Results:

We describe a new “tube-in tube” technique combining either a pedicled SCIP (Superficial circumflex iliac artery perforator) flap or a free RFF (radial forearm) flap with an ALT (Anterolateral thigh flap) free flap. By using the SCIP/ radialis flap as part mobile of the Urethra the inner tube is formed. The ALT flap builds the outer tube. By presenting cases of this technique, first experiences, outcome and the most occurring complications should be showed.

Conclusion:

By combining the reliability of pedicled flaps with the benefits in aesthetic outcome of free flaps, this new "tube- in- tube" technique represents a method to reduce complete flap failure by simultaneously decrease complication rate.

LOP07: Chimeric flap based on epigastric vessels. New model in rats

**Stefan Morarasu, Bianca Codrina Morarasu, Corneliu-George Coman, Ioannis Gardikiotis, Luigi Annacontini, Dragos Pieptu, Nicolae Ghetu*

Introduction:

Flap models in rats provide a basis for a wide range of fundamental experiments. Herein adipofascial flap based on epigastric vessels is designed for future studies on peripheral adipose tissue, hemodynamics and targeted substance delivery.

Materials and Methods:

Wistar rats of 400g (30 divided in groups of 10) underwent chimeric flap harvesting centered on epigastric vessels with a medial skin flap of 3 cm diameter pedicled on the medial branch of the epigastric artery and a fat pad flap pedicled on the lateral branch. Group 1 was assigned for anatomical study by vital injection with blue methylene in the femoral artery, using Vevo infusion pump®, which shows the angiosome including the fat. Distance from the epigastric branching to the two arteries supplying the flaps is measured. Microperfusion within the flap was assessed by intraarterial infusion of Vevo microbubble markers® and ultrasound evaluation. Groups 2 and 3 underwent flap harvesting and comparative echo and power doppler assessment of flap blood flow. In group 2 the fat pad flap was repositioned in its anatomical state, whereas group 3

had the lateral flap relocated on the anterior abdominal wall, underneath the skin flap. Rats were followed up for 3 weeks through photos and ultrasound.

Results:

Blue dye spread evenly across the entire flap. The vascular anatomy is constant, with the epigastric bifurcation located at 2 cm from the femoral artery. The flap consists of a 4,5/2 cm fat pad, laterally, and 3 cm diameter round skin paddle, medially. Doppler ultrasound confirmed the viability of the flap in both groups, thus relocating the fat pad and vessels is not followed by ischemia.

Conclusion:

New chimeric adipofascial flap is designed based on epigastric vessels.

LOP08: Experimental Models for Immunological Studies in Vascularized Composite Allotransplantation

**Andreea Grosu-Bularda, Dragos Zamfirescu, Andrei Stefanescu, Marius Popescu, Ioan Lasca*

Objective:

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

Methods:

We analyzed several microsurgical models in order to determine the most adequate one for immunological studies. We

performed both orthotopic and heterotopic hind limb transplantations (we tested different techniques: entire or partial hind limb allotransplantation) and also osteomyocutaneous flaps (with different bone components), noting their advantages and limits. Also we analyzed other models including epigastric flap allotransplantation and abdominal wall transplant for determine their utility as experimental models for immunological studies.

Results:

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

Conclusions:

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

LOP09: Microsurgical Models for Vascularized Composite Allotransplants In Rats

**Dragos Zamfirescu, Andrei Stoian, Andreea Bularda, Marco Lanzetta*

The aim of this work was to familiarize with some experimental microsurgical animal models used in the research field of Vascularized Composite Allotransplants (VCAs). All these animal models are vascularized allotransplants from Brown Norway to Lewis rats. A total 125 procedures

were done: orthotopic (n = 60) and heterotopic (n = 5) hind limb transplantation, femur transplantation (n = 5), limb and contralateral femur transplantation (n = 5), knee transplantation (n = 5), heterotopic calf transplantation (n = 5), tail transplantation (n = 5), sternum transplantation (n = 5), hemiface transplantation (n=5), scalp transplantation (n = 5), ear transplantation (n = 5), penis transplantation (n = 5), heterotopic mandible transplantation (n = 5), toe to thumb transplantation (n = 5). All animals received drug therapy (FK506, MMF and Prednisone) for 8 weeks, then treatment was ceased entirely. The average success rate of transplantation was 95,2%. This study demonstrated that these experimental models could be a reliable to study the vascularized composite allotransplants.

LOP10: The influence of Adipose derived Stem Cell on nerve regeneration

**Vlad Bloanca(1), Zorin Crainiceanu(1), Ana Maria Campean(1), Alexandru Pesecan(2), Tiberiu Bratu(1)*

Objective:

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

Methods:

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

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

Conclusions:

The adipose-derived stem cell has clearly demonstrated her capacity to

transdifferentiate, but the specific role played is not clear. We wanted to explore the direct effect of this cell on direct neurorrhaphy. We did not observe a direct differentiation on Schwann like cell, but mostly an antifibrotic and an antiinflammatory effect.

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LOP11: Efficiency of fibrocell and bone marrow or adipose- derived stromal vascular fraction on severe pathologic scar formation in burn

*Güvercin E, Demirel O, Aköz Saydam F, İlker B, Bozkurt M

Purpose:

Severe scar formation in burn cases causes multiple difficulties for practitioner and importantly for patients. Mostly combination therapies were administered for achieving satisfactory improvements. With the introduction of cell therapies in varying medical conditions, the promising results are obtained in the literature. The aim of this study is to investigate the effect of FIBROCELL® (autologous fibroblast) (Ars Arthro Biotechnology Corp.) and stromal

vascular fraction (SVF) (N-BIOTEK Corp) on severe pathologic scar formation in burn patients.

Methods:

A total of 7 patients with severe burn scars were enrolled in this study. Patients were divided in two groups, 3 patients were selected for FIBROCELL® group and 4 patients for SVF group. Two patients were under 18. The Patient and Observer Scar Assemble Scale (POSAS) was used for evaluation. Three injections were performed in every patient.

Results:

Mean clinical follow up was 13 months. Neck, chest and upper extremities were commonly effected regions. Hot liquid burn was the most frequent etiology. In SVF group, better scar quality was achieved compared to FIBROCELL® group. Improvements in scar thickness and pliability were observed in every patient. Less benefit was achieved in itching and color parameters. Pain relief was remarkable in SVF group.

Conclusion:

Fibrocell is an autologous fibroblast that promotes collagen and elastin synthesis in connective tissue. However, the stromal vascular fraction contains highly variable promoting cells. This study showed that cell-based therapies especially SVF were effective and beneficial in severe burn scars.

LOP12: ITGAV and ITGA5 diversely regulate proliferation and adipogenic differentiation of human adipose derived stem cells

*Morandi EM, Verstappen R, Zwierzina ME, Geley S, Pierer G, Ploner C

The fate of human adipose tissue stem cells (ASCs) is largely determined by biochemical and mechanical cues from the extracellular

matrix (ECM), which are sensed and transmitted by integrins. It is well known that specific ECM constituents influence ASC proliferation and differentiation. Nevertheless, knowledge on how individual integrins regulate distinct processes is still limited. We performed gene profiling of 18 alpha integrins in sorted ASCs and adipocytes, identifying downregulations of RGD-motif binding integrins integrin-alpha-V (ITGAV) and integrin-alpha-5 (ITGA5), upregulation of laminin binding and leukocyte-specific integrins and individual regulations of collagen and LDV-receptors in differentiated adipocytes in-vivo. Gene function analyses in in-vitro cultured ASCs unraveled differential functions of ITGA5 and ITGAV. Knockdown of ITGAV, but not ITGA5 reduced proliferation, caused p21(Cip1) induction, repression of survivin and specific regulation of Hippo pathway mediator TAZ. Gene knockdown of both integrins promoted adipogenic differentiation, while transgenic expression impaired adipogenesis. Inhibition of ITGAV using cilengitide resulted in a similar phenotype, mimicking loss of pan-ITGAV expression using RNAi. Herein we show ASC specific integrin expression patterns and demonstrate distinct regulating roles of both integrins in human ASCs and adipocyte physiology suggesting a negative impact of RGD-motif signaling on adipogenic differentiation of ASCs via ITGA5 and ITGAV.

LOP13: A Comparison of the regenerative gene expression in ASCs derived from UAL, SAL and Abdominoplasty samples

*Matthias M Aitzetmüller

Background:

Due to their regenerative potential, Mesenchymal stem cells are already in clinical use in several medical specialties. In

plastic surgery, mainly the adipose-derived stromal cells (ASCs) are in the focus of recent research to remedy defects across the whole body and to reverse ischemic tissue states. The ability of the regenerative cytokine release is the key mechanism in the therapeutic use of ASCs. Through the intensive research effort of the last decades in the area of liposuction for aesthetic or reconstructive use, various methods and devices have been developed. However which method derives the most potent cells for regenerative applications is still disputed. Here we assess ASCs from Ultrasound assisted (UAL) and suction assisted (SAL) lipoaspirate as well as ASCs from excised fat for their ability to release key cytokines for tissue regeneration.

Material and Methods:

UAL and SAL lipoaspirate was collected from 5 patients and compared with excisional fat from abdominoplasty samples from the same patients. ASCs were characterized by their surface marker profile CD45- / CD31- / CD34 + by means of FACS and the expression of differentiation cytokines (HGF, FGF-2, MCP-1, SDF-1, VEGF) was compared.

Results:

There was no significant difference between the release of HGF, FGF-2, SDF-1 and VEGF between the individual samples. However, we observed an increased expression of MCP-1 in the UAL sample.

Conclusion:

Utilizing an elegant study design with the patients serving as their own controls we were able to show that UAL and SAL both derive ASCs comparable to cells from excised fat. This demonstrates these methods have potential to harvest ASCs for autologous fat transfer and regenerative medicine.

LOP14: Trendy tattoos – maybe a serious

health risk?

*Paprottka FJ, Noah EM, Hebebrand D

Introduction:

Malignant skin diseases are on the rise. A review of the scientific literature reveals only a few case reports documenting the development of malignant lesions triggered by tattoos. Given an estimated 10 % prevalence of tattooed individuals in Europe, an increase in tattoo-associated skin tumors is likely to occur in coming years.

Material and methods:

All patient cases of post-tattoo skin malignancies – including squamous cell carcinoma (SCC), basal cell carcinoma, and malignant melanoma – were analysed (source: Pubmed / all publications up to March 2017). Parameters assessed included composition of tattoo ink, site of tattoo placement, personal or family history of skin cancer, type of skin cancer diagnosed, and time interval from tattooing to diagnosis.

Results:

Pubmed search located 51 publications about tattoo associated skin cancer with a total of 63 cases in these reports. Furthermore, one new unpublished case report with SCC-formation after tattooing is presented – finally summing up to 64 cases. Usage of black and dark blue inks was associated with 58 % of all skin cancers after tattooing. Usage of red ink was associated with 34 % of all skin cancers after tattooing - including 60 % of all SCCs and 73 % of keratoacanthomas. Furthermore obvious differences in time interval between tattooing and first diagnosis of skin cancer were detected for each kind of skin cancer.

Conclusion:

Overall, there is a certain risk for skin malignancies due to tattooing, which cannot be neglected. Black, dark blue, and in particular red inks are associated with the occurrence of malignant skin lesions

after tattooing. A more in-depth review of the link between tattoo ink and malignant transformation is strongly recommended by the authors.

LOP15: Estimation of health care system costs in treating non melanoma skin cancer

*Cozma Cristina-Nicoleta, Raducu Laura, Avino Adelaida, Sinescu Ruxandra Diana, Jecan Radu-Cristian

Introduction:

Non melanoma skin cancer is the most common type of cancer, with an increased incidence over the past years. Presently, every year are diagnosed globally between 2 and 3 million of non melanoma skin cancers, 80% of these are usually basal cell carcinomas and 20% squamous cell carcinoma. Because of the increasing incidence, non melanoma skin cancer became a problem for health care services due to patient lower productivity and treatment costs. Even though mortality is rare, within 1%, a lot of patients require extensive surgery, being exposed to additional anesthesia risks.

Material and method:

The present study is a retrospective study, realized over a 2 year period of time, including 150 patients treated in the Plastic Surgery Department of Emergency Clinical Hospital "Prof. Dr. Agrippa Ionescu". Descriptive data analysis was realized and the costs of each surgery were evaluated considering the necessity of general or local anesthesia, hospitalization days and additional imaging tests.

Results:

Non melanoma skin cancers treated were basal cell carcinoma in 83,3% of cases and squamous cell carcinoma in 16,7 % of cases.

Costs were higher in patients with bigger lesions, due to the necessity of general anesthesia required for extensive surgery and longer hospitalization days ($p < 0,05$). The mean value of hospitalization days was 3.5, being correlated with the difficulty of surgical intervention ($p = 0,003$). The average cost of a surgery with local anesthesia in a patient with no additional comorbidities is 200 euro in comparison with 650 euro for general anesthesia and additional comorbidities. Higher costs were also associated with rural provenience and squamous cell carcinoma due to the necessity of performing additional imaging tests, but were no correlated with older age.

Conclusions:

Considering the costs, non melanoma skin cancer became one of the main concerns for public health care system in developed countries. Romania doesn't have an evaluation of real costs for every patient and the importance of prevention or early detection. People from rural areas have a lower medical education and consult their general practitioner in advanced cases, which leads to the necessity of extensive surgery and reconstruction with higher costs and consequences for their appearance and self-esteem.

LOP16: Growth inhibition after combination drug treatment for 3D co-culture in wild type and V600E mutant BRAF melanoma tumour cells

*Alina Chelmuş, Dragoş Pieptu, Eric Tang

Introduction:

Melanoma has an aggressive phenotype with a high rate of morbidity and mortality. Tumour stromal environment heterogeneity and high drug resistance coupled with complex organ structure, makes the treatment for aggressive

forms a medical challenge.

Objective:

As part of an EU FP7 AIDPATH programme, we evaluated the phenotypic behaviour of wild type and V600E BRAF mutated melanoma tumour cells in 3D co-culture treated under different culture conditions. Materials and methods: Melanoma cell lines were transfected with Lentivirus-RFP and used to develop four different 3D co-culture models with normal human dermal fibroblasts (NHDF) and two primary stem cells (bone marrow or adipose derived stem cells). All cultures were treated with a BRAF and MEK inhibitors on day 3, in either monotherapy or drug combination. The morphological behaviour of these four culture models was studied when the microtissue was grown on a fibroblast feeding layer. Spheroid morphology and viability were evaluated using bright field and fluorescence imaging.

Results:

The growth inhibition after drug treatment revealed statistically differential response between the wild type and BRAF mutant constructs, under different co-culture conditions. There was no differential in responses to drug treatment when different stem cells were used. In contrast, when the 3D microtissues were seeded onto the NHDF feeder layer, the melanoma monoculture expanded at a much higher rate than the co-culture in the first days of culture, although all four culture conditions result in similar morphology after day 10.

Conclusions:

This novel 3D constructs may offer an enhanced in vitro model for drug evaluation, with a better translation to clinical settings. Key words: melanoma co-culture, BRAF wild type, stem cells, growth inhibition

LOP17: Life-saving surgical excision of

giant malignant melanoma metastasis

*Dumitrache S., Slavescu D., Capatina R., Gheorghe A.A., Iacob I., Giuglea C.

Introduction:

Surgical excision of malignant melanoma is critical for establishing the diagnosis but also for complete management. The prognosis for stage IV melanoma is poor, with only 10% to 15% of patients living past 5 years. Being the most deadly form of skin cancer, the malignant melanoma metastasis excision represents a palliative treatment.

Material and Methods:

After evaluating the general status and establishing the staging of malignant melanoma in a 66 year old man, we decided to excise a giant left laterocervical metastasis. After a thorough analysis of imaging investigations we performed a radical neck dissection that involved skeletization of internal carotid artery and internal jugular vein, radical cervical lymphadenectomy, lymphatic duct removal, sacrifice of the hypoglossal nerve, external carotid artery, inferior pole of the parotid gland, mandibular periosteum; followed by local deltopectoral rotated flap coverage and skin graft.

Results:

Postoperative status was favourable, with total removal of the cervical metastasis based on the anatomopathological result and the following MRI one month after surgery.

Conclusion:

Surgical excision of stage IV malignant melanoma is not a curative therapy. The complexity and the challenge of the case relies on the fact that the primary lesion has not been detected, only the secondary determinations have been traced and totally excised. Due to local invasion to the near proximity of internal carotid artery and internal jugular vein, surgery has been life-saving. The follow up resides in regular clinical examination and imaging investigations.

LOP18: Vascularized Composite Allotransplantation as Therapeutic Strategy for Burned Patients

*Andreea Grosu-Bularda, Oana Vermesan, Luana Lazarescu, Razvan Teodoreanu, Ioan Lascar

Traditional reconstructive methods can fail in achieving a good functional and aesthetic outcome in patients with extensive defects, involving multiple layers of functional tissue, often necessitating numerous, and staged, surgical interventions with unsatisfactory results. Transplantation of vascularized composite allografts(VCA) opened a new, promising era in reconstructive surgery, offering a unique restorative opportunity for those complex situations.

In order to extend VCA indications, further studies are needed to develop less toxic immunosuppressive regimens and possibly achieve donor-specific tolerance, the ideal situation in transplantation. Extensively burned patients, especially of the face and cervical region, having severe mutilations and also unilateral or bilateral hand amputations, like after high voltage electric injuries, present functional and aesthetic deficits, with devastating impact on their quality of life and, constituting potential candidates for receiving a vascularized composite allotransplantation, as the only reconstructive solution. With this paper, we discuss the indications and limits, from clinical and immunological perspectives, of the consideration of VCA as surgical option for burn patients with complex tissue defects, impossible to approach by conventional techniques.

LOP19: Standardized method for burn area evaluation in rats using tattoo and 2D digital planimetry

*TT Scutaru, CG Coman, M. Danciu, GV

Necula, MM Năstase, S Morărașu, D. Pieptu, N. Ghețu

Introduction:

The most common parameters in assessing burn wound healing are size and depth [1]. Consensus is lacking on the best approach to evaluate burn area. Some methods may impair healing by repeated contact (contact tracing planimetry) or require expensive equipment and slow learning curves (3D Digital planimetry, stereo photogrammetry). Simple, cheap, precise and reproducible method is required. Herein, tattoo and ImageJ are evaluated for burn area measuring in rats model.

Methods:

15 rats were divided in 3 groups. Intermediate burn wounds were inflicted using steam under pressure. Tattoo equipment is handheld machine GDJ-412 generic model of with 5RL needle and Starbrite Tribal Black ink. Rats received bilaterally on their back: Group 1-control tattoo; Group 2-burn+tattoo; Group 3- burn (left side), burn+tattoo (right side). Macroscopic changes and histology (H&E and Pearls stains) were documented for 22 days. Wound area and burn healing were analyzed with ImageJ for photographs and statistics method ANOVA.

Results:

Ink was present in all samples throughout follow-up. Tattoo neither overlapped burn area, nor affected wound healing. The wound contraction was 8.8% on day 7 and 12.6% on day 22. Unhealed surface decreased with 34% in tattooed burn areas. In no tattoo rats the examiners significantly failed to measure wound contracture and healing($p < 0.05$).

Conclusion:

The described method for burn surface area measuring is accurate, cost-effective, reproducible and accessible. Tattooing is an inert, non-toxic, inexpensive technique, allowing precise noncontact evaluation of

burn area in time.

References:

1.Gethin G. The importance of continuous wound measuring. WOUNDS UK. 2006;2(2):60.

LOP20: Women Do Worse Than Men? Gender Dimorphism in Burn Outcome

*Ederer IA, Hacker S, Salameh O, Radtke C, Pauzenberger R

Background:

According to the ABSI – Abbreviated Burn Severity Index – women exhibit an increased risk of succumbing to burn injuries compared with similarly injured men. Following non-thermal trauma, however, the opposite pattern can be traced: Clinical and experimental studies have shown higher mortality for the male gender. The purpose of this study was to evaluate gender-specific differences among burn patients with special regard to burn mortality.

Methods:

We retrospectively studied the medical records of 839 consecutive patients who were admitted and operated due to severe burns at the burn intensive care unit (BICU) in the Vienna General Hospital/Medical University of Vienna between June 1994 and December 2014. Patient demographics, burn aetiology and outcome characteristics were compared to elucidate gender-specific differences. In-hospital mortality was the primary outcome of interest for this study.

Results:

In total, women, who comprised 36.8% of all burn admissions, were significantly older than men (median 60.0 years vs 46.2 years; $p < 0.001$) and showed highest incidence rates among the elderly. Despite having smaller burn injuries (24.6% vs 30.3% total body surface area (TBSA); $p < 0.001$),

burn mortality among women significantly differed from that of men (27.8% vs 21.7%; OR 1.39, $p=0.045$, 95% CI 1.01-1.92). This association, however, did not persist after adjusting for age, %TBSA, inhalation injury and third-degree burns (OR 1.07, $p=0.77$, 95% CI 0.68-1.70).

Conclusion:

The current results do not support a relevant gender-specific difference in burn mortality. The higher risk among women was only apparent in univariate logistic regression analysis but diminished after controlling for potentially confounding factors. In conclusion, male and female burn victims were equally susceptible to die from burns.

LOP21: Fluid resuscitation of Bariatric Burns: Assessing the value of the Neaman Scale

*Ojas Pujji

Introduction and Aims:

The aim of this study is to determine the value of using the Neaman TBSA scale (NS) as opposed to the Lund and Browder scale (LBS) in determining fluid resuscitation required for the obese patient (BMI ≥ 30) who has a burn.

Material and Methods:

Fluid resuscitation in the first 24hrs in obese adult patients admitted to the Burn Centre at the Queen Elizabeth Hospital, UK in the last 5 years were reviewed. Patient TBSA were then recalculated using the Neaman TBSA scale and ideal bariatric burns resuscitation required was calculated by the Parkland formula.

Key results:

We identified 45 patients with a mean TBSA% of 24. An average difference in TBSA% calculation between LBS and NS was calculated to be 3.45%. Urine output

(UO) was adequate 1-0.5ml/kg/hr in 13 cases with 5 cases of UO of >1 ml/kg/hr and 4 cases of UO of <0.5 ml/kg/hr. In cases of adequate UO the fluid resus was closer to the LBS in 10/13 cases, over-resus cases fluids resus was closer to NS 4/5 cases and under-resus cases were closer to LBS in $\frac{3}{4}$ cases. Two over resuscitated patients had complications of over resus such as pulmonary oedema and pleural effusion. Weight was also underestimated in A&E in 14 cases with an average underestimate of 13.25kg which lead to under resuscitation in fluids in 5 cases.

Conclusion:

The value of the NS as a tool to resuscitate the obese has not been displayed in this cohort as there was a greater proportion of cases which had adequate UO where the actual resus was closer to the LBS calculation to the NS calculation. The discrepancy in weight appears to make a bigger difference in resuscitation compared to differences in fluid calculations using LBS and NS.

LOP22: Holey silk fibroin nerve conduits improve vascularization of the regenerating rat sciatic nerve

*M. Kerbl, N. Swiadek, P. Heimel, S.Nürnbergger, R. Hopf, J. Heinzl, A. Nogradi, A. Teuschl, C. Radtke, T. Hausner, H. Redl, D. Hercher

Introduction:

The pro-regenerative potential of nerve conduits for bridging large defects in peripheral nerves is inferior to the gold standard, the autologous transplant. This might be due to diminished vascularization and therefore nutrition of the nerve. Conduits with holes could improve vessel ingrowth, yet they might have a negative impact due to fibrotic infiltration and loss of growth factors. We aimed to compare the effects of silk fibroin conduits with or without pores on

vascularization of the regenerating nerve.

Materials and Methods:

In 36 male rats the sciatic nerve was transected creating a gap of 8mm. Defects were bridged with conduits fabricated from silk fibroin, either pored with 50 μ m holes by laser in a distance of 2 mm (P) or without pores (NP). Nerve regeneration was evaluated by walking track analysis and 7 weeks post surgery by μ CT, histology and assessment of wet muscle mass.

Results:

Ingrowth of vessels was increased in P group compared to NP based on CT-scan ($p<0.05$). Yet, overall nerve density, assessed by 3 dimensional reconstructions of tubes and nerves showed higher density in NP compared to P (n.s.). Similarly, average weight of M.tibialis anterior was significantly higher in NP compared to P ($p<0.05$). Analysis of gait revealed comparable results.

Conclusion:

For the first time this study shows that holey silk tubes are able to improve vascularization of the regenerating nerve without causing negative effects on the functional outcome when compared to tubes without pores. 3D CT-scans proved to be a valuable tool for visualization of peripheral nerves and their vascularization. Future preclinical studies are needed to verify the potential of holey conduits to support nerve regeneration in critical size defects.

LOP23: Mitigation of Postamputation Pain with the Prophylactic Regenerative Peripheral Nerve Interface

*Kubiak CA, Cederna PS, Kemp SW, Kung TA

Introduction:

Symptomatic neuromas occur in approximately 30-40% of individuals after

limb loss and phantom limb pain affects 70-95% of these patients. We have previously shown Regenerative Peripheral Nerve Interfaces (RPNI) can be used to treat symptomatic end neuromas that develop after major limb amputation. In this study, we investigate the potential of prophylactic RPNI to prevent neuroma formation and to mitigate the experience of phantom limb pain. Furthermore, we examine the potential complications resulting from the addition of prophylactic RPNI to major limb amputation surgery.

Methods:

RPNI were performed during the time of amputation by implanting transected peripheral nerves into free muscle grafts harvested from the amputated limb. Patients who underwent major limb amputation with simultaneous prophylactic RPNI implantation were identified. A retrospective chart review was performed to ascertain patient demographics, indication for amputation, level of amputation, characteristics of postamputation pain, perioperative pain management strategies, and postoperative complications. During follow up, all patients were evaluated for symptomatic neuromas, residual limb pain, and phantom limb pain.

Results:

RPNI were prophylactically implanted in 38 patients who underwent 44 major limb amputations. The mean patient age was 46 years (range 3-79) and mean follow up was 301 days (range 6-897). The most common indication for amputation was osteomyelitis from chronic wounds ($n=11$, 25%) followed by trauma ($n=8$, 18%). Below knee amputations comprised the majority of subjects ($n=34$, 77%). Major postoperative complications were defined as events that resulted in admission or surgery; one patient (2.6%) suffered residual limb infection necessitating operative washout. Minor complications included delayed woundhealing (16%)

and surgical site infection managed on an outpatient basis (9%). Fourteen patients (37%) reported symptoms of phantom limb pain during their postoperative course. Zero of the 142 surgical sites (0%) demonstrated any clinical evidence of symptomatic neuroma postoperatively.

LOP24: A Quantitative Analysis of the Sensory and Motor Fibres of the Brachial Plexus in Man

**Bernhard Gesslbauer, Marie Hader, Aidan D. Roche, Dario Farina, Roland Blumer and Oskar C. Aszmann*

Introduction:

Any surgical nerve reconstruction must take into account the amount of individual nerve fibres at any given level of injury. To date, however, literature on qualitative and quantitative assessment of motor axons of the peripheral nerves of the upper extremity is scarce. The aim of the present study is to present the total number of motor fibres of the brachial plexus from each root down to the level of its corresponding branches.

Material and Methods:

Nerve samples have been harvested from 9 organ donors immediately after death. From 8 incisions ranging from the neck to the wrist a total of 36 nerve samples were gained per organ donor. A special immunohistochemical protocol was applied to visualize the specific structure of interest within the nerve cross section. Antibody against neurofilament served to determine the total amount of myelinated and unmyelinated axons. Antibody against choline acetyltransferase (ChAT) was used to detect cholinergic/motor fibres. Peripheral nerve cross sections were then scanned and evaluated with a digital software program to allow quantification of each cross section. These numbers were

cross checked in an animal model with standard retrograde tracing methods. Finally, the quality of this method was also cross checked with staining ventral and dorsal roots of organ donors at spinal cord level.

Results:

As expected any given peripheral nerve contains afferent fibers. To our surprise, however, only around 10% of all axons in a mixed peripheral nerve are efferent fibers. In a "pure" peripheral motor nerve (thoracodorsal nerve) one fifth of the axons are cholinergic. In a pure cranial motor nerve the motor portion rises to about 25% (accessory nerve). The control experiments in a rodent animal model show good correlation between retrogradely labelled motor neurons with ChAT positive labels in the peripheral nerve section.

Conclusion:

Here we present for the first time a quantitative analysis of all afferent and efferent fibres of the brachial plexus and its consecutive nerves. The surprising finding is that even "pure" motor nerves with a suspected high number of motor fibres (thoracodorsal nerve) only have a relatively small number of efferents. Since this ratio is relatively constant for motor nerves at different levels of the extremity these results challenge the traditional view of fiber distribution and innervation density in man.

LOP25: Preclinical and clinical approaches in peripheral nerve surgery

**Tim Kornfeld, Christine Radtke*

Peripheral nerve injury is still a challenging problem in plastic and reconstructive surgery. Nerve defects are regularly caused by traumatic injuries or tumor infiltration. The followed morbidity is an underestimated factor in physical and psychological regeneration. In

cases were a direct end-to-end suture of the disrupted peripheral nerve is not achievable due to long gaped nerve defects, a proper micro surgical intervention with different surgical approaches (e.g. autografting) for nerve regeneration is indicated. In case of a negligible gap size a direct end-to-end micro suture would be indicated as long as the proximal and distal stump can be fixed without tension.

Current gold standard in nerve surgery is the surgical intervention with autologous donor nerves. Autologous nerve is explanted, turned and transplanted in the presenting nerve gap of the destructed nerve. Major disadvantage of this technique is the morbidity on the donor side which leads to loss of sensitivity in the area of distribution. Forming of neuroma is regularly observed and is often followed by pain and depression. The use of synthetic conduits, Allo- and Xenografts or natural biomaterials can be an alternative approach to the current gold standard. Unfortunately the clinical outcome especially in long-distance-grafting is, in spite of recently research achievements, still disappointing.

Nevertheless approaches in research in allografting and biografting shown the best results in reconstruction of long distance nerve defects compared to gold standard and synthetic nerve grafts. In this small study, regeneration potentials of already marketed conduits for nerve regeneration were reviewed and compared to allografts and biografts under development.

LOP26: The regenerative capability of the urodele amphibians and its potential for plastic surgery

**Bernhard Gesslbauer, Christine Radtke*

Newts and salamanders, both urodele

amphibians, are the only vertebrates with tremendous regenerative potency throughout their lifetime. In contrast to the limited regenerative potential of most mammals, including humans, they can regenerate an entire limb after amputation and many other structures of their bodies while humans mainly respond to injury by the formation of a scar. The intention of plastic surgery is to restore function of injured body parts, with the highest principle to replace "like with like". Despite tremendous improvements in surgical techniques over the last century, the remaining drawbacks include the availability of autologous tissue for transfer to restore extensive tissue loss. We want to present some regenerative features of the urodeles, in particular wound healing, nerve- and limb regeneration and to discuss their potential impact for reconstructive surgery. With a detailed molecular and cellular understanding of the urodele regeneration processes in combination with recent advances in tissue engineering, new perspectives for plastic surgery and especially improvements in regards to tissue regeneration are opened.

LOP27: Silk a versatile biomaterial for clinical translation

**Tim Kornfeld, Christine Radtke*

Chitosan, alginate and silk are representatives of natural biomaterials that have been extensively investigated for future clinical applications throughout the last years. Especially silk aroused the interest of biomedical research since the end of the last century. Until now silk is one of the most investigated and characterized biomaterials for clinical translation.

Auspicious mechanical and thermal properties regarding tensile strength, elasticity and heat resistance combined with

a unique cyto- and biocompatibility makes silk to a promising material for biomedical applications. Most studies rely on silk gained from spiders of species *Nephilla clavipes* or silk worms of species *Bombyx mori*. Silk can either be collected directly from the arthropods labial gland or respectively at the opisthosoma located spinnerets of spiders. Due to a complete characterization of the ultra-structural compositions of silk protein structures a recombinant production of silk is feasible.

Research groups from Europe, Asia and North America are currently working on possible clinical translation of silk based biografts. Results indicating that a use of silk based materials could be beneficial for the reconstruction of muscle tendon, cruciate ligament, meniscus or peripheral nerves.

Especially the use for chronic wound dressings and peripheral nerve reconstruction seems to be advantageous for the plastic and reconstructive surgery. Beside the use as biografts for possible future surgical approaches the use of single recombinant or non-recombinant silk fibers as pharmaceutical vectors for drug delivery e.g. charged with antibiotics have been discussed.

This review gives a brief overview of the current state of the art in silk grafting and the ongoing biomaterial research for future clinical translation.

LOP28: Zettaskin – the first trilaminar tissue engineering skin template – preliminary biomechanical, biocompatibility and fibroblasts and keratinocytes culture cells survival testing

**D Zamfirescu, M.G. Albu Kaya, I. Titorencu, R. Tutuianu, V. Pruna, I Muraru, A Beedasy, M. Simionescu*

Autologous tissue, like skin grafts and flaps, remain the gold standard for wound coverage. However, when autologous tissue isn't practical, whether because of wound size, location, patient's medical status or other factors, then bioengineering skin can provide an alternative to wound coverage while also minimizing patient risk. This tissue engineering skin substituent is designed with three layers with different porosity of collagen - alginate scaffolds that try to mimic the extracellular matrix of the skin. Due to the special template, these multilayer scaffolds allowed both fibroblasts and keratinocytes to grow and proliferate to form similar support with skin extracellular matrix. The deep layer is the most porous and is a hypoderm template. After a period of tissue ingrown, this layer is seeded with autologous fat cells. The middle layer had a medium porosity, is the dermal template and it will be seeded with fibroblasts. The superficial layer is designed to receive the keratinocytes. Preliminary result showed excellent biomechanical and biocompatibility properties and good integration with cultured fibroblast and keratinocytes.

LOP29: Platelet-rich plasma vs. fetal bovine serum in engineering of axially-vascularized osteogenic grafts from human adipose-derived cells to treat avascular necrosis of bone

**Tarek Ismail, Rik Osinga, Atanas Todorov Jr., Alexander Haumer, Laurent A. Tchang, Christian Epple, Nadia Menzi, René D. Largo, Alexandre Kaempfen, Ivan Martin, Dirk J. Schaefer, Arnaud Scherberich*

Introduction:

Avascular necrosis of bone (AVN) leads to sclerosis and collapse of bone and joints. Engineered, axially vascularized, human adipose-derived stromal vascular fraction

(SVF) cell based osteogenic constructs have been shown to revitalize necrotic bone of clinically-relevant size in a challenging rat model of AVN. To reduce regulatory difficulties towards clinical translation, fetal bovine serum (FBS) was substituted by thrombin-activated platelet-rich plasma (tPRP).

Methods:

SVF cells from 5 lipoaspirate were isolated and cultured onto porous hydroxyapatite scaffolds within a perfusion-based bioreactor system for 5 days. The medium was supplemented either with 10% FBS or 10% tPRP. The resulting constructs were inserted into devitalized bone cylinders mimicking AVN-affected bone. A ligated vascular bundle was inserted upon subcutaneous implantation of constructs in nude rats. After 1 and 8 weeks, vascularization and bone formation were analyzed.

Results:

After 1 week, neither maximal distance of vessels from the bundle nor vascular density was significantly different. However, FBS cultured grafts revealed significantly more human vessel (hCD34) and osteoclasts compared to tPRP cultured grafts. Overall macrophages and M2 macrophages were not different between FBS and tPRP cultured grafts. After 8 weeks in vivo, 3/5 samples from FBS culture and 1/5 sample from tPRP culture showed bone formation. Roughly 40% of the osteocytes were of human origin (36% from FBS and 42% from tPRP culture).

Discussion:

Despite promising results in literature, replacement of FBS by tPRP resulted in a reduced capacity of bone formation in our series. Further studies are necessary to analyze and improve the low bone formation capacity, possibly caused by the heterogeneity of the SVF donors and tPRP samples.

LOP30: Sericin Removal from Bombyx Mori Silk Fibers – Application in Construction of Peripheral Nerve Implants

**Paul Liebmann, Fritz Vollrath, Christine Radtke*

Silk fibers of the silk worm *Bombyx mori* show to have excellent mechanical properties and therefore find application in tissue engineering in various medical fields. However, processing of silk fibers and removal of sericin is necessary prior to incorporation due to reasons of biocompatibility. For this purpose different techniques have been developed. Nevertheless incomplete removal of sericin still continues to be a problem. In addition, mechanical properties and surface characteristics can be altered during this process. We herein present an outlook on areas of application in peripheral nerve surgery, available methods to remove sericin from silk fibers and techniques used to verify successful sericin removal.

LOP31: How Do Arteriovenous Loops Induce Angiogenesis? Flow-Dependent Alterations of miRNA and Gene Expression Profiles in a Rat AV Loop Model

**Dominic Henn, M.D.*

Introduction:

Arteriovenous (AV) loops are able to induce neoangiogenesis and, if placed into isolation chambers with a carrier matrix, lead to the development of a functional microcirculation, thereby enabling the creation of axially vascularized, transplantable soft-tissue units. The molecular driving forces behind the rapid neovascularization are elusive so far. To test the hypothesis that the increased blood flow in the AV loop mechanically induces proangiogenic regulatory pathways,

we analyzed microRNA (miRNA) and gene expression profiles in a rat AV loop model in comparison with sham-operated rats.

Methods:

AV loops were created in 21 rats by anastomosing a saphenous vein graft between the contralateral saphenous artery and vein. The AV loops were placed into isolation chambers filled with acellular dermal matrix and explanted 5, 10, and 15 days after exposure to enhanced blood flow (n=7 per group). Sham samples from 8 end-to-end anastomosed veins without enhanced blood flow served as controls. The expression profiles of 758 miRNAs and 30,584 mRNAs were determined by microarray analysis and quantitative real-time polymerase chain reaction.

Results:

Marked alterations of miRNA and gene expression profiles were present in AV shunts compared to controls. A strong overexpression of proangiogenic cytokines, oxygenation-associated genes and angiopoietic growth factors was observed in AV shunts compared to controls. Moreover, significant inverse correlations of the expression levels of miR-223-3p, miR-130b-3p, miR-19b-3p, miR-449a-5p, and miR-511-3p which are up-regulated in AV shunts, and miR-27b-3p, miR-10b-5p, let-7b-5p, and let-7c-5p, which are down-regulated in AV shunts, with their predicted interacting targets C-X-C chemokine ligand 2 (CXCL2), IL1A, ephrin receptor kinase 2 (EPHA2), synaptotagmin-2 binding protein (SYNJ2BP), forkhead box C1 (FOXC1) were present.

Conclusion:

Elevated vascular shear stress due to enhanced blood flow within AV loops induces rapid and strong changes of angiogenesis-related miRNA and gene expression profiles. Our in vivo data provide evidence that flow-stimulated angiogenesis is driven by miRNA-regulated induction of cytokines, oxygenation

associated genes, the embryonic transcription factor FOXC1, EPHA2, and SYNJ2BP. Synthetic proangiogenic miRNAs (miRNA mimics) may serve as specific tools to therapeutically enhance the vascularization of tissue-engineered soft-tissue free flaps in the future.

LOP32: Restoration of lymphatic function: free vascularized lymph node transfer with afferent lymphaticolymphatic and afferent lymphatico-nodular anastomosis

*T. Aung, M. Ranieri, P. Lamby, R. Müller-Wille, W.A. Wohlgemuth, Katja Evert, L. Prantle1, J. Dolderer

Lymphatic malformations (LMF) are characterized by abnormal formation of lymphatic vessels and tissue overgrowth. The lymphatic vessels present in LMF lesions may become blocked and enlarged as lymphatic fluid collects, forming a mass or multicyst. Lesions are typically diagnosed during childhood, and are often disfiguring and life threatening. Available treatments consist of sclerotherapy, surgical removal and therapies to diminish complications.

Lymphatic malformations in inguinal region and inguinal lymphnode dissection is a challenging operation to occur without lower extremity lymphedema (LEL). Here, we report the first case of the resection of a lymphatic malformation and Dissection of the inguinal Lymph node and simultaneously we complete the reconstruction with mini abdominal plastic with vascularized lymph node transfer (VLNT) from ipsilateral and free VLNT from contralateral suprainguinal lymphnode with afferent lymphaticolymphatic anastomosis(ALLA) and afferent lymphatico nodular anastomosis (ALNA).

The VLN was harvested from the ipsilateral

and contralateral suprainguinal region under Indocyanine green (ICG) lymphography and patent blau navigation and transferred to the right groin region. The afferent lymph vessel of the VLN was supermicrosurgically anastomosed to the contralateral medial thigh lymphatic vessel.

Postoperative, there were no subjective or objective lymphedema on the right side and further on the left side. The patient needed no more compression garment and manual lymph drainage. Further postoperative ICG lymphography showed the restoration of the lymphatic function.

LOP33: Supermicrosurgical treatment of persistent lymphorrhea with reconstructive lymphovenous anastomosis

*Andrej Ring

Introduction:

After oncological or general surgery interventions, therapy resistant lymphorrhea of incisions in inguinal area are troublesome and can have persistent complications. Traditional therapy options are usually destructive and not always successful therapies. They bear the risk of chronic lymphoedema of the affected limb. We present a supermicrosurgical reconstructive method.

Methods:

Female patient 70 y received ultrasound guided inguinal lymphadenectomy of a lymph node suspicious of being a metastasis of a previously treated uterine carcinoma. Consequently, for three months persistent secretions occurred from a right inguinal skin-fistula requiring daily dressing changes. Following a negative histological result repetitive wound revisions were performed, with long lasting drainage after every attempt.

Subsequently, frustrating radiation therapy was attempted to obliterate the fistula.

Results:

Preoperative visualisation of the affected limb's lymphatic system through ICG-FLAG was performed. We excised the lymphocele capsule and transposed a pedicled lymph node-adipofascial SIEA perforator flap and anastomosed two productive lymph vesselstumps to a bifurcated receiving vein of the flap. We were able to prove the patency of the anastomosis and the perfusion of the flap. We removed the 'silent' drains on the second day post operation. A significant circumference reduction without relapse could be observed in the postoperative course.

Conclusion:

Supermicrosurgical lymphovenous anastomosis is a valuable complement for the therapy of persistent lymphorrhea. The reconstructive method differs from the more traditional options with regards to the lymph-drainage function of the affected limb physiology.

LOP34: Vascularized lymph node transfer from the terminal ileum for reconstruction of lymphatic extremity drainage as treatment for secondary chronic lymphedema

*Andrej Ring

Introduction:

A reliable transfer of vascularized lymph nodes helps sufficiently with regression of chronic lymphoedema. A feared postoperative complication is the development of donor-site lymphedema and should be avoided at all costs. We introduce a laparoscopic-assisted surgical technic for vascularized lymphnode transfer from the terminal ileum for reconstruction of lymphatic extremity drainage.

Methods

The edema severity was preoperatively examined by indocyanin-green fluorescence lymphangiography and found to be at a "splash" and "stardust" stage. A sustainable donor region was identified via transillumination after laparoscopic mobilization of the mesentery. Microsurgical dissection of the lymphnode flap was done while preserving the peripheral intestinal arcades. In all cases a lymphovenous anastomosis was performed additionally to the lymph node transfer.

Results

A significant volume and circumferential reduction of the affected extremity, as well as subjective pressure relief could be observed and measured 7 days postoperatively and sustained in both cases during a follow-up for 3 months without the need for compression therapy. Donor-site complications did not occur.

Conclusions

The laparoscopic-assisted vascularized lymph node transfer from the ileomesentery in combination with supermicrosurgical lymphovenous anastomosis is a safe and effective method for reconstruction of lymphatic extremity drainage as treatment for secondary lymphedema with the benefit of reduced risk for donor-site lymphedema.

LOP35: The role of split Costochondral Graft in the restoration of nasal dorsum in post-traumatic nasal deformities

**Tarek Elbanoby, Gaber Ali, Amr Elbatawy*

Introduction:

Rhinoplasty in the treatment of traumatic nasal deformity remains one of the most challenging problems for surgeons. Reconstruction of the nasal osseocartilaginous framework is the foundation of successful rhinoplasty. In

this article, we present our experience in restoration of the dorsum of the nose in post-traumatic nasal deformities, by carved in-situ split costochondral graft as a new technique to restore the missing part of the nose.

Patients and Methods:

From April 2013 to May 2016, 13 patients, including nine males and four females underwent augmentation rhinoplasty for the correction of the post-traumatic nasal deformity. Patients in need of soft tissue reconstruction were excluded from this study. The nature of nasal deformities varied between saddle nose, a crooked nose or combined. The nasal dorsum was restored using the split costochondral graft. The mean follow-up period after the surgery was 22 months. Patients' satisfaction evaluation was obtained, and the results were analyzed and reported.

Results:

A total of 13 rib graft rhinoplasties were performed in the three-year review period. The mean duration of clinical follow-up was 22 months. None of the grafts warped. None of the patients had lost dorsal projection; only one patient has lost the columellar strut secondary to infection, two of the patients developed hypertrophic scars, and two of 13 patients (26%) had revision surgery for minor cosmetic revision.

Conclusion:

The fundamental strength of the osseocartilaginous rib graft lies in replacing like with like. In-situ splitting of the costochondral graft provides a safe and efficient method to restore the nasal dorsum. A chimeric bony and cartilaginous graft allows for bone integration with the nasal dorsum, preventing mobilization, and allows for subtle sculpting of the cartilaginous nasal tip.

LOP36: Effect of montelukast on capsular

contracture after breast augmentation: a comparative study

**Salvatore Giordano*

Background:

Leukotriene antagonists zafirlukast and montelukast have been used by plastic surgeons off-label to prevent and treat capsular contracture in breast implant surgery. At the present, only few studies investigated their efficacy.

Methods:

A retrospective analysis was performed to investigate the effectiveness of montelukast in preventing and treating capsular contracture.

This study included 177 consecutive women who underwent cosmetic breast surgery using textured silicone prostheses. Same surgeon operated all women using infra-mammary approach and dual-plane pocket and a treatment of at least 3 months of montelukast was offered to them at the regimen of 20mg once a day. Therefore, patients were divided into two groups on the basis of montelukast treatment.

Follow-up on montelukast efficacy was obtained by a combination of office chart review and standardized telephone questionnaire with a minimum follow-up of 4 years.

Results:

Sixty-seven patients received montelukast for 3-6 months. Mean age of the patients was 35.82±8.71 years (range 19-56 years), and co-morbidity was present in 11.76% of cases. All groups combined had a mean follow-up evaluation of 58.71±13.45 months (range 48-136 months) and mean breast size (cc) of 333.89±107.60 cc (range 155-690 cc).

No significant differences were found for the use of montelukast versus control in the prevention of capsular contracture after surgery, although the number of affected

patients and the severity of capsular contracture were higher among the patients who did not use montelukast. No adverse effects were found.

Conclusions:

Montelukast may prevent and improve symptoms of capsular contracture. However, further studies are needed for justifying its somministrazione.

LOP37: Skin rejuvenation through HIF-1α upregulation – A new treatment paradigm in anti-aging medicine

**Dominik Duscher*

Introduction:

Skin changes are among the most visible signs of aging. With aging the skin thins and changes in the connective tissue reduce the skin's strength and elasticity. The blood vessels of the dermis become more fragile. This leads to bruising and impairments in the regenerative capacity of aging skin. The hypoxia-induced factor HIF-1α is a master transcription factor regulating tissue homeostasis by controlling the cellular response to stress, injury and ischemia. Studies show that aging leads to an increasing limitation of HIF-1α activity, which in turn causes chronic regeneration and wound healing disorders. Recent evidence suggests that upregulation of HIF-1α can regenerate aging skin on a molecular level. Here we present anti-aging effects linked to upregulation of HIF-1α expression through local removal of free iron in cutaneous tissue via the small molecule Deferiprone.

Methods:

We characterized the effects of the iron chelator and HIF-1α activator Deferiprone on aged dermal cells in vitro via gene expression and protein analysis. Next a

topical cutaneous application of Deferiprone was formulated and tested in 30 healthy volunteers in a dermatologically controlled, randomized, split face study over 6 weeks. Skin roughness, moisture, barrier function and elasticity were measured. Wrinkle severity was additionally rated by independent expert observers.

Results:

Deferiprone significantly increased regenerative cytokine expression of dermal cells in vitro. In the clinical study a significant improvement of skin surface roughness, moisture and elasticity could be detected. Skin barrier function was unaffected. Expert assessment demonstrated significant wrinkle reduction.

Conclusion:

The application of the iron chelator and HIF-1 α activator Deferiprone resulted in rejuvenation on both the cellular and the tissue level leading to significant improvements of skin quality and appearance without any signs of irritation.

LOP38: Reduction mammoplasty in obese patients results in increased risk of post-operative complications: a comparative study on 756 patients

*Salvatore Giordano

Background:

Access to breast reduction surgery is sometimes limited for obese women due to their higher rate of complications. We investigated the impact of obesity (BMI >30) in reduction mammoplasty.

Methods:

The charts of 756 consecutive patients who underwent primary bilateral breast reduction between 2005 and 2014 were reviewed. Patients underwent mastopexy, asymmetry, secondary procedures and revisions, were

excluded. The included patients were divided into 2 groups on the basis of BMI. Obese (BMI >30) group comprised 225 patients, while non-obese group included 531 patients. Breast reduction was performed in all patients by the same surgical team.

The primary outcome measure was the occurrence of early postoperative complications. Secondary endpoints were specific wound healing complications and late occurrences.

Results:

There were no statistically significant differences between groups with respect to general characteristics, except for age, BMI and weight. The obese group showed significant higher incidence of depression and other comorbidities but not diabetes.

Significant difference was detected in operative time (135.98 \pm 34.04 vs 124.16 \pm 32.02 minutes, $p < 0.001$), a significant resection weight amount (870.19 \pm 366.50g vs 580.46 \pm 249.72g, $p < 0.001$), and a significantly increased blood loss (382.13 \pm 230.23ml vs 289.18 \pm 167.90ml, $p < 0.001$), which were all higher in the obese group.

Similarly, significant difference was detected in the obese group concerning superficial and deep wound infection rate (respectively, $p = 0.007$, $p < 0.001$), fat and nipple necrosis ($p = 0.020$, $p = 0.035$).

There were no differences for late wound revision, dog-ear excision and re-operation occurrence (13.33 vs 11.86%, $p = 0.380$).

Conclusions:

Obesity (BMI >30) in reduction mammoplasty significantly affects the complications' occurrence. Obese patients should be carefully counselled preoperatively about higher morbidity of this procedure.

LOP39: Pain Management for Non-

Syndromic Craniosynostosis: Adequate Analgesia in a Pediatric Cohort?

*Alexandra Macmillan, Deepa Kattail, Leila Musavi, Rachel Pedreira, Regina Cho, Joseph Lopez, Amir Dorafshar

Introduction:

Limited literature assesses pain management following craniosynostosis surgery. None report detailed post-operative pain scores. The purpose of this study was to investigate whether pain is adequately controlled following this procedure at one institution.

Materials and Methods:

Retrospective chart review was performed of cases (n=54) of non-syndromic craniosynostosis undergoing primary open reconstruction at The Johns Hopkins Hospital, Baltimore from April 2010 to July 2016. Demographics, peri-operative dose and route of analgesics, daily pain scores, and emesis events were recorded. Multivariable regression models were designed to assess for independent predictors of length of stay and emesis.

Results:

Mean age was 21.2 months (± 28.2); mean length of stay was 3.7 days (± 1.9). Most children had moderate to severe pain in the first 48 hours post-operatively. Intra-operatively, all received opioid, usually fentanyl (74.1%). Post-operatively, 94.4% were prescribed post-operative intra-venous parent/nurse controlled analgesia (PCA). All were prescribed acetaminophen; 11.1% ketorolac. 98.2% were prescribed enteral oxycodone. Emesis was documented in 50%. Emesis was associated with increased length of stay, trending towards significance ($p = 0.054$). No association was found between length of stay and dose of opioids administered post-operatively ($p = 0.68$), or between opioid dose and emesis events.

Conclusion:

Pain management was inadequate in the

first 48 hours post-operatively, despite near routine utilization of opioid via PCA. We have introduced a new multimodal analgesic protocol, advocating increased use of non-opioids. We will continue to record pain scores in order to monitor subsequent outcomes.

LOP40: Le Fort Fractures in Children - Do They Exist?

*Alexandra Macmillan, Joseph Lopez, JD Luck, Muhammad Faateh, Edward Davidson, Richard Redett, Anthony Tufaro, Paul Manson, Amir Dorafshar

Introduction:

Currently, it is unclear whether Le Fort-type fractures occur in the pediatric population. The purpose was to examine the etiology, incidence, and fracture patterns of children with severe facial trauma associated with pterygoid-plate fractures.

Materials and Methods:

We reviewed all pediatric patients with pterygoid-plate and facial fractures that presented to our institute from 1990-2013. Patient charts and radiological records were reviewed for demographics and fracture characteristics. Patients were further categorized by dentition age, frontal sinus development, and mechanism of injury. Facial fracture patterns were categorized into two groups: group A, non Le Fort-type fractures, group B, Le Fort-type fracture patterns. Univariate methods were employed to compare groups.

Results:

Of the 24 patients identified, the majority presented with typical Le Fort-type fracture patterns (group B; 66%). Of these 24 children, 58% had skull fractures, 46% had intracranial trauma, and 17% developed meningitis. Age was significantly different between group A and group B (mean 5.9 vs 9.9; $p = 0.009$).

No significant differences in injury severity score, rate of operative repair, and length of stay were found between groups. 10 children with deciduous and mixed dentition presented with Le Fort-type fracture patterns (group B). Of these children, 6 did not have a developed frontal sinus.

Conclusion:

Our study provides evidence that children with deciduous and mixed dentition do present with complete Le Fort-type fractures. Although non Le Fort-type fractures may be more common in younger children, mature facial skeleton development is not a prerequisite for the development of Le Fort-type fractures.

LOP41: Craniofacial Distraction in Management of Anterior Plagiocephaly: A novel idea and A Systematic Review of the Literature

**Tarek Elbanoby, Amr Elbatawy, Gaber Aly*

Background:

The objective of this article is to present a review of all reports included management of uni-coronal synostosis with distraction osteogenesis. Also, we innovated a new method in the treatment of cases of anterior Plagiocephaly in an early time using distraction osteogenesis.

Methods:

We present a case in which the anterior plagiocephaly was treated by distraction osteogenesis of both metopic and hemicoronal sutures in a four-month-old female patient. A comprehensive systematic review was completed using key search terms, including distraction, uni-coronal synostosis, anterior plagiocephaly, craniosynostosis. We excluded all experimental articles and picked up the clinical reports which show the usage of

Distraction Osteogenesis in the management of uni-coronal synostosis. The study sample of this review consisted of 16 reports that, we analyzed them in detail.

Results:

Over 17 years, 16 articles were published in seven journals reported the use of DO in the treatment of Unicoronal Synostosis. A total number of patients treated by DO were 120, the mean age at operations was 12 months. In the case presented. The rate of distraction was 1/3 mm/day for the metopic suture for 48 days and 2/3 mm/day for the right coronal suture for 30 days. Successful distraction osteogeneses for both sutures were achieved with adequate correction of cranioorbital dysmorphology.

Conclusion:

Distraction Osteogenesis is one of the mainstay treatments in uni-coronal synostosis. We believe that distraction of both metopic and hemicoronal in anterior plagiocephaly could improve the shape and restore the midline shift.

LOP42: 3D printing guided surgery in the treatment of unicoronal craniosynostosis

**Tarek Elbanoby, Amr Elbatawy, Gaber Aly, Mohab Sharafuddin*

Introduction:

Restoration of all abnormal features of uni-coronal synostosis considers a challenge for craniofacial surgeons. The main purpose of this abstract is to evaluate the usage of 3D mirror image models in guiding of the Fronto-Orbital Advancement in Unicoronal synostosis.

Methods:

A retrospective analysis of 12 consecutive

patients who underwent surgical correction of uni-coronal Synostosis at our institution between 2012 and 2017. Patients with syndromic craniosynostosis or associated craniofacial anomalies 3D printing were excluded from analysis. In all cases, the senior author used a 3D mirror image models for guiding unilateral Fronto-Orbital Advancement. Demographic, perioperative, and follow-up data were collected for comparison. Cranial and Orbital volumes with craniometric measurement were documented preoperative and postoperatively and compared with the non-synostotic side. The postsurgical appearance of the face was documented photographically and then evaluated and scored using the Whitaker scoring system.

Results:

The mean age of the patients at the time of the operation was 20 months (range 10–34 months). The mean follow-up duration was 36 months (range one to four years). No patients exhibited a relapse of uni-coronal plagiocephalic characteristics that required surgical correction. There were improvements in the orbital indices and volume to be near equal to the normal side.

Conclusions:

Our study demonstrates that patients who undergo uni coronal plagiocephaly correction with a 3D mirror image models for guiding unilateral Fronto-Orbital Advancement achieved satisfactory improvement. Our results suggest that the surgical technique used in the correction of unilateral coronal synostosis is strongly associated with near equal in both orbital volumes.

SOP01: Vascularized bone marrow transplantation model in rats as an alternative to conventional cellular bone marrow transplantation

**D Zamfirescu, A Bularda, A Stefanescu, A Stoian, M Simionescu, M Lanzatta*

Background:

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

Methods:

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

Results:

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

Conclusions:

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

microsurgical procedure (transplantation of vascularized bone marrow flaps).

SOP02: The impact of two different osteosynthesis methods on fracture healing— experimental models

**Tiberiu Paul Neagu, Ion Zegrea, Cristian Cobilinschi, Serban Arghir Popescu, Cristian Radu Jecan, Ioan Lascar*

Introduction:

Hand fractures represents a challenge for every plastic surgeon. Choosing the best osteosynthesis method can be sometimes the most difficult part of the whole procedure. Understanding the healing process of the injured bone is crucial. Therefore, for a better comprehension of the fracture healing we designed murine models in order to assess two of the most used fixation techniques in hand fractures – osteosynthesis with plates and screws and internal fixation with K-wires.

Materials and methods:

In the first experimental model we used both techniques in order to reduce bilateral femur fractures in rats. In the second model, each technique was used separately (one for each group). The rodents were assessed from the clinical, radiological and histological point of view. Cell counting (osteocytes) was performed in order to see which method had better outcomes, providing direct proof regarding the quality of the healing process.

Results:

We did not achieved fracture healing after reducing bilateral femur fractures due to the implant failure. In the second model, using plates and screws led to better histomorphometry results. The difference between the groups regarding the number of osteocytes inside lacuna was statistically significant (t-test for equal variances not assumed, $p=0.001$) which confirms a

mean difference of 32 cells/mf with a 95% confidence interval of 15–50 cells/mf; deviation of 10 cells/mf.

Conclusions:

This two experimental models can be used for future research. We demonstrated based on the histological findings that osteosynthesis with plates and screws leads to a better bone healing. Therefore, increase stability of the fracture site is associated with better outcomes, compared to less stable methods, even if limited periosteum stripping was performed.

SOP03: The Profunda Femoral Artery Perforator flap: an anatomical and cadaveric study

**Velicanu Ana*

Background:

Within the framework of mammary reconstruction, since 2012 when Allen first described it, the profunda femoral artery perforator flap (PAP) takes an important place in the current therapeutic options.

Objective:

This anatomical study aims to analyze the anatomy and morphologic consideration of the PAP: position of the perforating artery; length of the pedicle, area and volume of vascularization.

Methods:

16 flaps were harvested on fresh subjects at the University Department of Anatomy of Rockefeller, Lyon. The first direct cutaneous branch from the deep femoral vessels was located between or through the adductor magnus and gracilis muscles. Pedicle location, diameter, length and position regard to the great saphenous vein were recorded. A flap based on this vessel was designed. Height, width, and surface of the skin paddle were recorded. Three-dimensional computed

tomographic angiography was used to analyze the area and volume of cutaneous territory supplied by the studied perforator.

Results:

On the 16 analyzed flaps, localization of the perforating artery is on average to 8.2 cm of the pubic tuber and 3.7 cm behind a line connecting the pubic tuber to the internal femoral condyle. The length of the pedicle is on average of 11.7 cm and the average area of skin perfused was 113 cm². The way of this perforating artery is primarily through the adductor magnus. On the radiological images of the 8 flaps, the analysis shows an average surface of 101 cm² and a mean volume of 325.3 cm³.

Discussion:

PAP is an interesting therapeutic choice within the framework of a mammary reconstruction. Its surface and its volume associated with a discrete scar make a valid indication within the framework of this surgery.

SOP04: Functional reconstruction of complex hand defects by vascularized femoral periosteum flap

**Andrej Ring*

Introduction

The reconstruction of complex hand defects continues to be a challenge, through increasing expectations brought by the multitude of new microsurgical possibilities. We are proposing a single-stage procedure with durable coverage that allows an early postoperative rehabilitation to maximize functional outcomes.

Methods

After radical excision of all affected tissues were reconstructed the flexor tendons and pulleys, if needed. For covering the defect and to replace the gliding surface we used a vascularized periosteum flap, a modification

of the medial femur condyle flap. The periosteum flap was covered with a full-thickness skin graft.

Results

The periosteum flap provided a thin and pliable sheet of durable tissue that successfully replaced the gliding surface of the flexor tendons. Ossification of the transplanted periosteum was not observed. Donor site morbidity and local wound complications were negligible. Early rehabilitation was possible as soon as the skin graft stabilized. This allowed all the patients to regain a good range of motion and significantly improved hand function.

Conclusion

In our modern “on fast forward” society short postoperative recovery time and early return to work are essential. Therefore, single-stage reconstruction offers the possibility to fulfill these expectations, if required. In exceptional situations, with severe functional impairment or even loss of contralateral extremity, the proposed reconstructive procedure could be a valuable alternative.

SOP05: Facial Reanimation with Free Latissimus Dorsi Muscle Transfer, a comparative study between lateral and supine approach

**Wael Ayad, Amr Elbatawy*

Introduction:

Facial nerve paralysis is a devastating deformity seriously affecting individuals both aesthetically and functionally. The main goal of the Dynamic reanimation of the paralyzed midface is to create a natural smile to mimic the normal side. Selection of the optimal donor muscle has been a controversial topic ever since the neurovascular free-muscle transfer was first developed for the

treatment of facial paralysis. The Latissimus Dorsi muscle was the pickup choice by Several authors in facial reanimation either as a single or two stages. In this study, we express our experience in usage of free Latissimus Dorsi muscle in facial reanimation by two approaches and explain the pores and cones of each technique.

Patients and Methods:

Between April 2014 and October 2016, Latissimus Dorsi (LD) functional muscle transfer was used for smile reanimation in 16 patients with complete facial palsy. We classified the patients into two groups -each group of eight patients. In the first group, we harvested the muscle with a supine approach through the trans axillary incision. While in the second group, a segment of the muscle were harvested with a lateral approach through an incision in the back. The study comprised of seven females and nine males ranging from 13 to 45 years of age. Muscle harvesting time, total operating times, blood loss, the bulkiness of the flap, and donor site morbidity were analyzed. Evaluation of smile by using the scaled measurement of the improvement in lip excursion (SMILE) system was conducted pre and postoperative to measure the angle of smile and excursion distance during smiling and rest on both sides.

Results:

16 cases of long-standing facial nerve paralysis were included in this study. All patients had a free micro-neurovascular transfer of a segment of the Latissimus dorsi flap. The hypoglossal nerve was used in 12 cases as the motor nerve while the lower trunk of the facial nerve was used in four cases. The study comprised of seven females and nine male patients with age ranges between 13 and 45 years old

(mean, 26.6). In the first (supine approach) group, The muscles used were pyramidal in shape, 7.5-8.5 cm in length and width was around 5 cm in the maximum width, time of muscle harvesting was 100 minutes. Mean operative time was 5 hours. Mean blood loss was 312cc. No donor site complications were observed in any of the cases.

In the second (lateral approach) group, The muscles used were rectangular, 4–5 cm in width (mean 4.3 cm) and 8–9.5 cm in length (mean 8.3 cm). In three cases, there was a need to skin paddle, so the muscle was harvested as a musculocutaneous flap. Mean Time of muscle harvesting was 65 minutes, mean operative time was 8 hours. Mean blood loss was 360 cc. Donor site complications in two cases in the form of skin dehiscence and seroma were managed conservatively. All the patients in the series were able to achieve rest symmetry of their oral commissure. The mean time to onset of visible neural reinnervation was 4.2 months with tone returning before dynamic movement. Patients continued to show improvement over a 6-month period to achieve their final outcomes.

Conclusions:

The LD muscle is a suitable option for facial reanimation; the Lateral approach is considered as a standard method to harvest the LD muscle for facial reanimation due to its easy and could be associated with skin paddle in complex cases. In our study, the trans axillary approach Provides less operative time, blood loss, and donor site morbidity.

SOP06: A cheap method of evaluating pre

and postoperative the vascularization of cutaneous flaps

**Raducu Laura, Cozma Cristina-Nicoleta, Balcangiu-Stroescu Andra Elena, Sinescu Ruxandra Diana, Jecan Radu-Cristian*

Introduction:

Numerous methods are used for evaluating flaps like Doppler, CT angiography or Indocyanine Green Angiography. All of these methods require trained specialists, expensive instruments and are time consuming. Dynamic infrared thermography is a new technique with no radiation exposure that evaluates temperature and superficial vascularization of the skin. The purpose of this paper is to evaluate skin vascularization using a thermographic camera in order to design viable flaps.

Material and method:

Twenty-six patients with different cutaneous defects planed for reconstruction were included in a prospective study. The planed flaps were evaluated pre and postoperatively. Preoperatively, the flap was designed considering its perforators or pedicle that was assessed using the thermographic camera Flir E50. Postoperative evaluation was also realized, assessing local vascularization and ischemic areas.

Results:

Perforators were identified as being hot spots and the flaps were harvest considering this information. Local complications were not numerous, partial necrosis occurred in one case where skin vascularisation was affected by radiotherapy and a total flap necrosis in one case due to patient misbehavior.

Conclusions:

Dynamic infrared thermography is a safe and noninvasive technique that can evaluate flap vascularization with assessment of the real time perfusion and flap perforators. This has an important role in avoiding complications and in flap design. Related to other methods,

it is an inexpensive reproducible technique that can be used with a minimum training and with no contraindications to any patient.

SOP07: Management of non-healing complex wounds in patients with autoimmune disorders and rare seen diseases via bone marrow aspirate concentrate

**Demirel O, Güvercin E, Aköz Saydam F, İlker B, Bozkurt M*

Purpose:

Clinical presentations of autoimmune diseases(AD) are variable. Although immunologists take the main interest, multidisciplinary approach is usually essential in the treatment. Especially diseases with skin involvement like non-specific vasculitis (NSV), anti-phospholipid anticor syndrome(APAS), Behçet's disease (BD)and Kawasaki disease, treatment can be challenging. The aim of this study is to evaluate the efficiency of bone marrow aspirate concentrate (BMAC) on non-healing complex wounds(NHCW) in AD and rare seen diseases.

Methods:

6 patients with NHCW located in lower extremity due to different etiologies were enrolled in this study. Diagnosis of patients were Behçet's disease, non-specific vasculitis, anti-phospholipid anticor syndrome, Kawaski disease, İchtiosis and epidermolysis bullosa. Average onset time of NHCW was 18 month. Every patient had at least 6 surgery. After first consultation serial debriments were planned. BMAC was adminstrated after debriments. BMAC was harvested from the anterior iliac crest and 60 cc aspirate processed via SmartPReP BMAC® system (Harvest Technologies Corp.).Skin graft applied and negative pressured wound

therapy (V.A.C VeraFlo™ Therapy, KCI Corp.) was used for wound dressing.

Results:

Main follow up was 20 months. Average operation number was 3. All wounds totally healed. Complications like hematoma or infection, were not seen during BMAC harvest.

Conclusions:

Utilization of BMAC in different disciplines is remarkably increasing; promising results were shown in the literature. However exact mechanism is unknown BMAC treatment has efficient in NHCW. Further studies with this usage need to be carried out.

SOP08: Negative pressure wound therapy to the dura

**Ojas Puji*

Negative-pressure wound therapy (NPWT) is historically contraindicated in patients with osteomyelitis or exposed dura. Although its beneficial effects on the scalp have been published, there is a lack of literature describing the application of NPWT on delicate vasculature and internal organ such as the dura mater. We present a case of a complex reconstruction of an infected full thickness scalp burn, where NPWT was successfully used over the dura.

SOP09: Coverage of a chronic chest wound after cardiac surgery – case report

**Dumitrache S., Vasile R., Burlacu E., Coman C.F.*

Introduction:

Infected wounds after median sternotomy are associated with significant morbidity, increased cost of care, prolonged

hospitalization. Mortality rates are more than 50%, although the incidence is relatively low (0.5% to 5%). The ideal method of treatment is adequate debridement and repair with vascularised tissue. Pectoralis major muscle is a reliable choice for this type of defects when the mammary artery based flaps are not available.

Material and Methods:

After staged debridement of devitalised tissue, targeted antibiotherapy, negative pressure dressings, we managed to achieve an adequate clean surgical wound. Surgical plan was based on the absence of both internal thoracic arteries. A pectoral major muscle flap was designed with a 2cm extension of rectus abdominis muscular fascia to cover the whole defect.

Results:

Postoperative status was favourable, with no wound dehiscence or infection, with good coverage and surgical healing.

Conclusion:

A number of factors should be considered for an optimal selection of reconstructive methods, including the site and type of the defect, patient history and biological status.

SOP10: The consequence of the crush syndrome on the diabetic patients

**Viorica Mihaluta, Rodica Iordachescu, Alina Stoian, Mihai Garbuz, Alina Panciuc, Grigore Verega.*

Introduction:

The Crush Syndrome appears like increasing of hydrostatic pressure in a closed osteofascial space at the extremities and all the adverse effects on local microcirculation with mioneural dysfunction and subsequently with tissue necrosis at this level, is directly proportional with time and magnitude of this phenomenon.

Material and methods:

The clinical study included 4 patients with diabetes, with crush syndrome at the calf level. Inclusion criteria were: age, sex, type of diabetes, the cause that lead to crush syndrome with severe local complications. At 3 patients, complications occurred after surgery with metal plate fixation and tense suturing. Also we can see an increase in medical analysis of the following parameters: glucose, creatinine, urea, oxalates in the urine, etc.

Results:

In our study patients were affected by peripheral polyneuropathy, so as the postoperative period evolved without the manifestation of the violent painful syndrome. We succeeded in keeping at 3 patients the amputational stump at the calf level. At the last patient we saved the leg through a series of consecutive surgeries, like necrectomy, installation of the negative pressure system, autodermoplasty with split skin graft. At all of the patients, the medical parameters decrease, including the blood glucose has fallen twice compared that it was at hospitalisation.

Conclusions:

Crush syndrome and diabetes are two diseases with aggressive etiopathogenesis. Once crush syndrome is resolved, this vicious circle is interrupted and the medical parameters decrease considerably.

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SOP11: Preliminary Studies in Abdominal Wall Allotransplantation

**Andreea Grosu-Bularda, Luana Lazarescu, Alexandru Stoian, Ioan Lascar*

Introduction:

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

Material and methods:

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

Results:

The surgical procedures performed in cadaveric models shown the feasibility of this new reconstructive option, which may be translated to future clinical practice in association with organ transplantation.

Conclusions:

The advent of abdominal wall allotransplantation, as a particular entity in VCA field, offers a viable solution for complex abdominal reconstruction in extensive tissue defects, representing a lifesaving procedure for some of the multi-visceral transplant patients, important to consider for future development.

SOP12: Our training ladder for surgical specialties

**Ioannis Gardikiotis, Corneliu George Coman, Vlad Gabriel Necula, Stefan Morarescu, Tabita-Timeea Scutaru, Nicolae Ghetu*

Introduction:

The purpose of surgical training program is increasing the performance of professionals involved in the medical act: students, nurses, residents, researchers or consultants and professionals from academic environment.

Material and Methods:

Our proposal of training is represented by a pyramid which includes under- or post-graduate levels of medical professionals, involved in surgical field. This model has on its base the 1st level of basic training and is mandatory to all categories involved on medical activities. The curriculum is organised by the university's faculty and includes theoretical and practical sessions. The 2nd level is represented by specific training and prepares the future plastic surgeons in microsurgery, for example. The next levels are optional. The 3rd offers advanced training for specialists who want to exercise in the laboratory for a premiere operation. This kind of training can be organized on request or on a larger scale as hands-on workshops. The last level is represented by research. It necessitates skills, infrastructure, finance. Master or doctoral students are the categories the most interested.

Results:

These 4 levels of training can be applied customized at each person's level of skills. Hands-on workshops are based on animal models. Specific courses for plastic surgeons will be exemplified.

Conclusion:

We believe that structural method of training is the best way to advance step by step on the next level, without having loopholes and reaching the desirable level of education. This is also confirmed by the graduates of the programme.

SOP13: Model of sciatic nerve regeneration in Wistar Albino rats

* *Anamaria Victoria Bumbu*

Introduction:

The aim of this study is to develop new in vivo and in vitro methods, based on electric conductivity and 1H NMR techniques to evaluate and quantify the nerve regeneration after injury.

Material and methods:

For this study, 32 Wistar Albino male rats were equally divided into 2 groups. The left sciatic nerve was interrupted using a sharp blade. In the first group direct suture reconstruction was performed, and for the second group a silicone nerve graft was used. The contralateral sciatic nerve is used as a control in all rats. The rats were sacrificed at 4, 6, 8 and 10 weeks after nerve reconstruction. From each group a number of two rats were randomly selected for in vivo electric conductivity measurement. For the 1H NMR relaxometry the sciatic nerve for all four rats from each group were measured using a variety of pulse sequences correlated with the advanced Laplace inversion analysis.

Results:

The threshold of the stimulating voltage, response time and conduction velocity were measured for both sciatic nerves. The results were compared related to the time elapsed after injury, correlated with both reconstruction methods. In the injured nerve we observed a significant increase in the threshold of stimulus, correlated with a decrease of conduction velocity. During regeneration process the response velocity increases slightly from week 4 to week 8 for the direct sutured nerve. A significant increase was observed at 10 weeks after lesion. The T2 distributions measured for all groups presents four peaks. These were associated with 1H located in different pools like: i)

bounded on to the collagen fibrils from axons, ii) epineurium with reduced mobility inside adipose cells iii) perineurium as free water with restricted mobility along or surrounding axons and iv) inside blood vessels. The healing process was monitored by specific changes of the main peak corresponding to 1H from perineurium. The same pool was investigated by the distribution of 1H NMR self-diffusion coefficient of water along the axons.

Conclusion:

Significant differences were observed between the two types of reconstruction, direct suture or nerve graft. The in vivo electric conductivity showed that the response velocity in the case of reconstruction using direct suture at 10 weeks after lesion is the same with the healthy nerve, therefore we can consider that the nerve healed.

SOP14: Temporoparietal fascial flap for palate reconstruction in cleft patients

* *Enrique Olivares*

Objective:

Oronasal fistula is an important complication of cleft palate repair. The overall incidence of reported fistula is 8.6 percent. Furthermore the incidence of fistula in cleft lip-cleft palate is significantly higher than in cases of cleft palate alone. The closure of wide palatal clefts and recurrent oronasal fistulae may be challenging. After repeated failure of conventional techniques (local flaps or buccal flaps), microvascular tissue transfer may be indicated in the closure of such fistulae. We present the temporoparietal fascia flap (TPFF) as alternative for larger fistula.

Materials and Methods:

After adult cadaveric heads dissections, an innovative temporoparietal fascial flap was performed in two cases of giant oronasal

fistula.

The first case is a 2-year-old male, and the second an adopted 5-year-old male. Both patients had significant lack of palatine mucoperiosteal flaps.

Results:

The follow-up period has been more than 3 years (mean 4 years). The closure of oronasal communication was achieved without recurrence of the fistula. No significant complications were seen. The donor site morbidity is minimal.

Conclusion:

The TPFF is a well vascularized flap that can be used for closure of giant oronasal fistula. The TPFF can be raised with minimal associated morbidity.

SOP15: Validity of virtual 3D planning in management of maxillary hypoplasia for cleft lip palate patients

* *Mohamed Osama Ouf*

Almost all cleft lip and palate suffering from midface deficiency with impairment of maxillary growth and malocclusion. For decades, maxillary hypoplasia was treated with conventional le fort i maxillary advancement. This concept has been unstable and shows a great tendency to relapse. From the early 90's with application of distraction osteogenesis in craniofacial surgery, this problem started to be resolved by distraction method to overcome the complication of traditional methods. In order to be more precise and accurate in this study we planned to use 3D medical image processing and editing software, which can perform a detailed analysis of data using the anthropometric analysis, guiding the surgeon to do osteotomies, and apply distractor.

SOP16: Scar transfer – An innovation

*Tarek Elbanoby, Gaber Ali, Khallad Sholkamy

Introduction:

The face is the organ of identity and one of our most significant means of communication. Facial scars are considered to be a fundamental challenge that faces every plastic surgeon. Atrophic scars are the most numerous compared to others. The standard feature of these scars is their bottom, which is located below the level of surrounding tissues. In such type, there is no universally effective modality of treatment, so we innovate a surgical modality that can be considered as a replacement procedure. The aim of this study is to evaluate the use of the superficial temporal artery island flap for replacing atrophic facial scars.

Patients and methods:

Sixteen patients were involved in a prospective study who conducted in our institution between 2013 and 2015, the inclusion criteria were atrophic facial scars, and within reach of the superficial temporal artery island flap, the exclusion criteria included those with hyperactive scarring. A superficial temporal artery island flap used to replace the scar tissue and release the tension forces acting on the edges of the scar. We classified the patients into two groups: (patients with facial scars in hairy area and patients with scars in a non-hairy area). Scars were assessed for 2-year by using the Patient Scar Assessment Scale (PSAS) scale, and the Vancouver Scar Scale (VSS), standardized photography and the observer scar Assessment scale (OSAS).

Results:

Twelve males and four females were included in the study. Mean age of patients was 20 years. They were all caused by trauma the average size of the defect after excision of fibrous tissue is 2.5 cm, the

mean size of the flap is 2.7cm. There was no flap loss; one case was complicated with hematoma formation. Our scales and medical photography demonstrated replacement of scary tissue by normal one with relatively invisible circumferential line scar.

Conclusion:

Eradicable solutions of scars necessitate a regenerative healing process. In our study, we innovate a new surgical modality to replace the scary tissues by vascularised skin to mimic the regenerative process with relatively invisible circumferential line scar.

SOP17: Correction of nose defects using hyaluronic acid: results and complications

*Valeriu Ardeleanu, Cristina Nicoleta Cozma, Laura Raducu, Cristian Radu Jecan

Introduction:

In the last years hyaluronic acid had more and more indications for use. Nowadays it can be injected to correct nasal dysmorphic features and imperfections. These corrections can be considered a non-surgical rhinoplasty, even if the term might be inappropriate.

The present paper aims to present some cases of this non-surgical rhinoplasty with hyaluronic acid and their analysis in terms of indications, limits, results and complications.

Material and method:

The present study was performed on a group of six patients, five females and one male, at the Galician Aesthetic Clinic. The patients age ranged from 27 to 41 years.

The main indications for hyaluronic acid rhinoplasty are: visible septum deflections at the exterior by creating filling holes on the opposite side of the deviation, saddle nose, thin nose, posttraumatic defects, overcorrected nose secondary to surgical rhinoplasty and the nose with a collapsed insertion of the nasal pyramid. A relative

indication is the nasal hump that may be dimmed by the addition of distal or proximal hyaluronic acid.

The limits of this injection technique are defined by its own indications. Excess volume of the nose, very pronounced aquiline nose, major septal deviations, respiratory dysfunctions, or nubian nose cannot be corrected.

Results:

The results were appreciated by completing a patient satisfaction form, on a scale of 1 to 10 grades of satisfaction. All patients rated 10 grades of satisfaction. We can say that the results are excellent and fully satisfy the patients, when the indications are properly supported and explained to the patients.

Conclusions:

We consider a real gain for patients to use this injection technique in perspective of nose trauma, recovery time, results, risk of complications and cost, with the reference that the indications of this technique are limited. Properly injected hyaluronic acid does not give complications. We can list only minor side effects such as bruising, local discomfort or small irregularities for 3 to 5 days after injection.

SOP18: Reconstruction of combined thoracic and spine defects

*Daniel Murariu, Lei Feng, Stephanie Nemir, Patrick Garvey, Charles Butler, Alexander Mericli

There is a paucity of literature for reconstruction options and outcomes related to defects that involve combined thoracic space and spine defects. We present a single institution, retrospective review between 2006 and 2016 for thoracic/spine defects following oncologic resections. We identified 40 consecutive patients with reconstructions involving both the thoracic space and spine.

Of these, 22 (55%) required a staged approach to tumor resection with posterior approach performed initially followed by anterior approach on average two days later. These were compared with 51 patients undergoing spinal reconstruction alone following tumor resection and instrumentation. Mean follow up time was 63.2 months (95% CI: 39.8-76.8) and those patients that had undergone a staged reconstruction had a higher survival rate compared to rest of patients. Patient requiring reconstruction of both the thoracic space and spine were more likely to be older than 55 ($p=0.0086$), to have received preoperative steroid ($p=0.0003$), to have more spine levels instrumented ($p<0.0001$), more than two vertebrectomies ($p<0.0001$), undergo more rib resection ($p<0.0001$), to have pleura violated ($p<0.0001$), have more drains and longer drain time removal ($p=0.0003$ and $p=0.0027$) and be more likely to have more than 3 muscle flaps for reconstruction ($p<0.0005$). Given the more extensive surgeries, the patients with both thoracic and spine defects also had higher rates of immediate complications (52.5% vs 17.6%, $p=0.00004$) and long-term complications (69.2% v 35.3%, $p=0.0014$). Although reconstructions involving both the thoracic space and spine are associated with a greater complication rate, appreciation of the many reconstructive nuances associated with these challenging cases can result in an acceptable, durable, and reproducible outcome.

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Tufaro, A.	LOP40
Turbatu, M.	LOP04
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**Do you even
notice what
she's wearing?**