The Second Congress of the International Society of Plastic Regenerative Surgery: An International Scientific Forum for Regenerative Surgery

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A paradigm shift has occurred in plastic surgery and other related specialties: the emergence of regenerative surgery. The International Society of Plastic Regenerative Surgery was created to help the world share advances in the science and clinical practice of adipose-based regenerative surgery.[1] The Second Annual Congress of the International Society of Plastic Regenerative Surgery convened June 6 through 9, 2013, in Berlin, Germany.

HOW WAS THE INTERNATIONAL SOCIETY OF PLASTIC REGENERATIVE SURGERY MEETING DIFFERENT FROM OTHER MEETINGS?

International Society of Plastic Regenerative Surgery Berlin 2013 and its predecessor, International Society of Plastic Regenerative Surgery Rome 2012, were meetings that taught attendees by sharing information about fat grafting and adipose-related technology from every corner of the world. Instead of having instructors teaching the audience, the meeting focused on the sharing of innovations, or even revelations, in the clinical use of fat grafting, stromal vascular fraction, adipose-derived stem cells, and growth factors. Research presented was primarily of a translational nature that will most likely influence plastic surgery clinical practices in the near future. This combination of presenters gave the attendees of International Society of Plastic Regenerative Surgery Berlin 2013 a truly international perspective of adipose technology and regeneration, with 88 presenters from 45 countries.

INITIAL SESSIONS

After the opening ceremony, the Congress launched immediately a review of the history of fat grafting in plastic surgery by Riccardo Mazzola. Gino Rigotti, International Society of Plastic Regenerative Surgery president, began the first scientific talk with a discussion of the newly recognized entity, the postadipocyte, and its potentially integral role in fat grafting. Brian Kinney foreshadowed the importance of nomenclature in a brief talk that followed. Hans Hauner, from Germany, the first scientist who isolated and cultured human preadipocytes, was our keynote speaker this year.

Sydney Coleman related his early experiences in the 1980s and early 1990s of witnessing improvement in the quality of skin, diminution of wrinkles, decrease in pore size, and improvement in skin color. Ali Mojallal, Eckhard Alt, and Wolfgang Wagner further highlighted the dramatic changes in aging skin treated with fat grafting.

UNDERSTANDING ADIPOSE-DERIVED STEM CELLS

Considerable time was devoted to the understanding of adipose-derived stem cells. Peter Rubin, Norbert Pallua, Dennis Von Heimburg, Eckhart Alt, Lee Pu, Kotaro Yoshimura, Renata

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Sonnefeld, Patricio Centurion, Degheidly Tamer, Cheng Nai-Chen, Ramon Llull, and Feng Lu all presented insights into adipose-derived stem cells and approaches to understanding their contribution to regeneration.

MAXIMIZING FAT GRAFT HARVEST, PROCESSING, AND SURVIVAL

Different methods for maximizing the fat graft's harvest, processing, and survival were presented and discussed extensively. Kotaro Yoshimura began with an overview of enhancing regeneration after fat grafting, and discussed many factors over the course of the meeting that might enhance fat graft take. Ali Mojallal discussed the effect of the size of the lobule on fat graft survival. Peter Rubin reviewed experimental studies that analyzed fat graft survival. Lee Pu gave a comprehensive review of the recent advances in research, focusing on the technical maneuvers for harvesting and placement.

EXTERNAL EXPANSION

Dennis Orgill from Boston joined us to present several talks on the effect of mechanical forces on living fat, and teamed up with Roger Khouri and Yvonne Heit to discuss the effect of external volume expansion and Brava (Brava, LLC, Miami, Fla.) on fat graft survival. Discussions of this technology continued throughout the presentations of fat grafting in the breast.

CAN GROWTH FACTORS IMPROVE FAT GRAFTING?

Valerio Cervelli and Pietro Gentile presented a large positive experience with the use of platelet-rich plasma to enhance fat grafting. Peter Rubin, Aldel Noreldin of Egypt, Dana Jianu of Romania, and many others expressed similar positive effects of growth factors. Willemsen Joep demonstrated that platelet-rich plasma added to facial fat grafting not only improved the results but also reduced recovery time.

STROMAL VASCULAR FRACTION

Stromal vascular fraction was highlighted at International Society of Plastic Regenerative Surgery Berlin 2013 as an evolving technology that deserves the utmost attention. In fact, stromal vascular fraction was discussed to some extent at almost every session in the entire Congress. Sessions on the use of stromal vascular fraction–enriched fat were presented for an amazing array of indications, including rejuvenation, injuries, scars, burn wounds, scleroderma, diabetic ulcers, open fractures, and many breast indications. We also spent much time discussing potential problems with the use of stromal vascular fraction, including safety issues, potential complications, and government regulation of stromal vascular fraction.

FAT GRAFTING TO THE BREASTS

Six hours of International Society of Plastic Regenerative Surgery Berlin 2013 was devoted to the use of fat in the normal breast. Extended sessions continued with presentations of fat grafting in the reconstructed breast (Nolan Karp, Ali Mojallal, Paulo Leal of Brazil, Kosovac Olivera, Gino Rigotti, Roger Khouri, Harder Yves, and Broer Niclas). The use of stromal vascular fraction–enriched fat was then presented in extensive talks by Kotaro Yoshimura, Pietro Gentile, Ramon Llull, Aris Sterodimas of Greece, and Dan Del Vecchio. Breast sessions have indeed highlighted the entire meeting as regenerative surgical approaches to cosmetic and reconstructive breast surgery continue evolving.

CAN FAT GRAFTING AFFECT BREAST CANCER?

The final session of the breast section was devoted to safety. The effect of fat grafting on breast cancer occurrence and detection was discussed extensively by Ramon Llull, Joern Kuhbier, Alessandra Marchi, and Qingfeng Li. Norbert Pallua gave a thorough summary of the worldwide experience so far with breast cancer and fat grafting.

CRANIOFACIAL/MAXILLOFACIAL APPLICATIONS

These sessions began with Riccardo Mazzola tracing the use of fat grafting in war injuries from World War I to today. Mazzola's talk was a great introduction to Peter Rubin, who spoke on the treatment of craniofacial war injuries and painful amputations with fat grafting. Ewa Siolo offered up her extensive experience in the use of fat grafts in craniofacial and cleft surgery. Fernando Molina demonstrated his considerable experience in using fat injections in craniosynostosis and syndromic craniofacial deformities. Riccardo Tieghi of Italy presented an overview of the application of structural fat grafting in patients with congenital craniofacial deformities.

AESTHETIC FACIAL FAT GRAFTING

Especially interesting were the talks on the use of stromal vascular fraction to supplement facial fat grafting given by Seung-Kkyu Han, David Daehwan Park, Aris Sterodimas, Steven Cohen, and Gontijo de Amorium Natale of Brazil. The simpler, more traditional uses of facial fat grafting were presented by one of the first users of fat grafts, Abel Chajchir, and by Fernando Molino, Tsai-Ming Lin, and Kotaro Yoshimura.

CORRECTION OF CHRONIC CONDITIONS

Perhaps the most revolutionary sessions of the meeting were devoted to the correction of previously difficult-to-treat or untreatable chronic conditions with fat grafting and stromal vascular fraction. Talks about systemic or localized sclerosis were given by Guy Magalon of France, Gino Rigotti, Caviggioli Fabio, and Isabella Mazzola of Italy. Sandeep Sharma of India and Stasch Tilman presented the use of stromal vascular fraction in diabetic ulcers. Roger Khouri presented the use of fat grafting for the correction of Dupuytren's contracture. Other talks addressed the treatment of lichen sclerosis of the vulva (Casabona Francesco), radiation injuries (Vasilyev and Alessandra Marchi), and even stress incontinence (Florence Rampillon) with fat grafts.

TISSUE ENGINEERING

To obtain a glimpse into the future, many tissue-engineering presentations were given. Aris Sterodimas of Greece showed us three-dimensional scaffolds used to engineer an ear. Jorg Witfang presented combining bone with stem cells for enhanced bone regeneration. Bosetti Michela, P. Bauer-Kreisel, Feng Lu, Radke Christine, Uysal Cagri, Dennis Orgill, and Sin-Daw Lin described methods for repairing tissue defects with fat grafting combined with scaffolds.

FAT STORAGE AND BANKING

Lee Pu, Norbert Pallua, John Fraser, Jeffrey Hartog, Lamblet Hebert, Skorobac Asanin Violeta, and Carelli Stephana gave conflicting views of the efficacy of freezing fat. Interestingly, Jeffery Hartog presented his personal series using cryopreserved fat grafts for staged breast reconstructions with acceptable outcome both clinically and radiographically.

REGULATIONS AND ETHICS CONCERNING FAT TRANSPLANTS, STROMAL VASCULAR FRACTION, ADIPOSE-DERIVED STEM CELLS, AND GROWTH FACTORS

Toward the final moments of the meeting, perhaps one of the most interesting sessions was on government regulation and ethics. Brian Kinney continued his discussion from the first day, talking about the online marketing of fat grafts and stem cells. Gino Rigotti posed the alarming question, "Can fat grafting be regulated like a drug?" Greg Evans, then president of the American Society of Plastic Surgeons, gave an update on the U.S. Food and Drug Administration and other

Fig. 1. A view of the Glass Dome at the German Parliament, where the official Congress dinner was held. The stunning panoramic view over the city of Berlin from the glass dome was also astonishing.

regulatory agencies. Rick D'Amico gave an update on the American Society of Plastic Surgeons Task Force on Regenerative Medicine. A lively discussion followed.

BEFORE THE MEETING

A course entitled "Fundamentals of Fat Grafting: Complementary and Conflicting Techniques" took place on June 6, 2013, the afternoon before the Congress began. This was a basic course comparing the varying techniques that have evolved in fat grafting, contrasting the many techniques that have developed for different indications, looking at how they contrast with and complement each other. The differences and similarities of each technique were highlighted.

CONGRESS DINNER

A spectacular Congress dinner took place at the German Parliament on Saturday June 8, where the International Society of Plastic Regenerative Surgery had the chance to thank the Musculoskeletal Transplantation Foundation, our major sponsor, for its generous contribution to International Society of Plastic Regenerative Surgery Berlin 2013. Participants had a fantastic time at this breathtaking venue, with a delicious gourmet meal at the restaurant where only members of the parliament are usually allowed to enter (Fig. 1).

International Society of Plastic Regenerative Surgery 2014 will take place in Miami, Florida, September 11 through 14, 2014. It will undoubtedly be another successful meeting with a great deal of scientific sharing in this exciting field of plastic surgery. Please stay tuned for the updates.

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