



The WSRM Newsletter
Spring-Summer 2013
Volume 4, Issue 4

World Society for Reconstructive Microsurgery

The purpose of the Society shall be to stimulate and advance knowledge of the science and art of Microsurgery and thereby improve and elevate the standards of practice in this field of surgical endeavor. The Society shall be the highest medium of recognition in the field of Microsurgery as evident by superior attainment and by contribution to its advancement. It shall provide an international forum for the exchange of ideas and the dissemination of innovative techniques.



Message from the Editors

Welcome to the spring 2013 issue of the WSRM newsletter. We hope that all WSRM members had a wonderful holiday season, and we wish you all a very happy new year. In 2012,

we welcomed 69 new members into the WSRM. The first Congress of the Asian Pacific Federation of Societies for Reconstructive Microsurgery was held October 8-9, 2012, in Singapore, co-chaired by Dr. Tann Soo Heong and Dr. Tan Bien Keem. The purpose of this congress was for surgeons of the Asian/Pacific countries to share their experience and knowledge of new developments in the field of reconstructive microsurgery and the application of new microsurgical techniques.

In response to an increase in interest about microsurgical approaches to lymphedema treatment, we have included in this newsletter a few articles on that topic. For the "What's New in Microsurgery: New Frontiers in Research" section, Dr. Hiroo Suami submitted an article titled, "Lymphatic Mapping and Application of Microsurgery for New Research Fields." For the "What's New in Microsurgery: New Options in Practice" section, Dr. Ghazi Althubaiti submitted an article titled, "Free Vascularized Supraclavicular Lymph Node Transfer: A New Option for Lymphedema Treatment." Also, a mini-review article regarding the surgical treatment of lymphedema was submitted by Dr. Keith Blechman. We hope that these articles will be helpful to readers who are interested in the microsurgical treatment of lymphedema.

The year 2013 is expected to be an exciting year for the WSRM, as the Seventh Congress of the WSRM will take place July 11-14 in Chicago, Illinois, USA, organized by Dr. Robert Walton in conjunction with the American Society of Reconstructive Microsurgery. Dr. Walton and the organizing committee have been working tirelessly to make this meeting an exciting event. Its theme is "Achieving Normal: The Ultimate Paradigm in Reconstructive Surgery." We hope that all members and guests of the WSRM can attend this much-anticipated meeting in Chicago, which should be beautiful and enjoyable during the summer, and help make this meeting a great success.

Kazuteru Doi, MD, PhD
President/Editor

Panayotis Soucacos, MD
Associate Editor

David W. Chang, MD
Associate Editor

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What's New in Microsurgery?

Lymphatic Mapping: An Application of Microsurgery for New Research Fields

Hiroo Suami, MD, PhD.

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The lymphatic system plays an important role in human health and disease. In addition to a role in the immune response, the lymphatics can serve as a pathway for cancer metastasis. Identifying and studying the lymphatic system has been a challenging task because lymphatic vessels are microscopic transparent channels.

Current anatomic knowledge of lymphatic anatomy is based on work by Sappey in 1874, who injected lymph vessels in cadavers with mercury. These studies have not been repeated because mercury is now prohibited because of its toxicity. Recent clinical experience with lymphoscintigraphy has revealed many cases of cancer spread along lymphatics that do not agree with the work of Sappey. For example, melanoma on the back can bypass the expected pathway to lymph glands in the groin and pass directly into the abdomen, and melanoma on the trunk can cross the midline to gland fields on the opposite side, hitherto thought to be impossible. A re-evaluation of the anatomy of the lymphatic network is important to address these inconsistencies and refine our knowledge of cancer spread.

I have established a protocol for conducting a radiographic study of the lymphatics in fresh human and animal cadaver subjects. These pilot studies commenced in rabbits and dogs and were extended to human cadavers since 2001. I found that an intradermal injection of water soluble dye was taken up by the lymphatics up when postmortem specimens was frozen and thawed. The lymphatics could then be identified, cannulated and injected. This allowed us to use the fresh frozen human limbs which had not been previously injected or dissected and solved the problem of how to preserve the subject. Subsequently, I discovered that hydrogen peroxide is preferable for identifying lymphatics.

To define the lymphatics pathways the dye stained lymphatics was cannulated with a fine glass cannula or 30G needle under the surgical microscope and injected with the radio-opaque mixture. The specimen was radiographed and then the lymphatic channels were traced, photographed and the direction of their valves charted. Preliminary results suggest that the lymphatics are closely related to the veins, but with significant differences.

There is significantly less interconnection between the lymphatics than veins, and the caliber of the lymphatics does not increase significantly as the vessel passes proximally.

Initial investigation started in upper extremities in a human. Important findings are:

- Major collecting lymphatics accompanied the cephalic and basilic veins and their major tributaries.
- Connections between the collecting lymphatics of adjacent sentinel node territories were uncommon and when it occurred it was close to or at the axilla.
- The sentinel node territory was constant on the front of the upper limb where the collecting vessels drained to a single node, whereas the back of the arm was variable with multiple sentinel node territories.
- In the studies of the superficial lymphatics there was no flow of the injectant seen into the deep lymphatics that accompany the major neurovascular bundles, except
- In a unique case where axillary dissection and mastectomy had been performed years previously without the development of lymphedema. In this study bypass shunts between blocked and patent subcutaneous collecting lymphatics were noted: (a) via lymphatic vessels that pierced the deep fascia to reach deep lymphatic pathways and (b) via precollectors with incompetent valves and the avascular lymph capillaries in the skin.

The next investigation has focused on the anterior chest with special attention to the breast. The appropriate inoculation site of dye and tracer for sentinel node detection of cancer spread is still a contentious issue. Our studies suggest the peritumoral site to be the most appropriate.

- In some cases the entire breast drained to one sentinel node whereas in other studies multiple sentinel nodes drained the organ so that a nipple/areolar injection may miss detection of the sentinel node of a peripheral tumor.
- Lymphatic vessels passed over or through the breast tissue en route to the axilla, rather than the breast having an isolated component of its own.
- Perforating lymphatics were detected accompanying the branches of the internal thoracic vessels to reach deep sentinel nodes that accompanied the perforating blood vessels.

- There was no difference between sexes.
- In two studies (forequarter) with the upper limb, the same sentinel node drained both the breast and a major area of the anterior upper limb. Hence sentinel node biopsy for the breast cancer in such cases could possibly predispose to lymphedema of the upper limb at a later date.

Lymphogenic metastasis is central to the dissemination of many solid cancers. Our understandings of this process are limited by the lack of information regarding the lymphatic system. Sentinel node biopsy became standard of care in the management of melanoma and breast cancer patients. However, it is inapplicable in recurrence cancer cases. I have already found newly developed lymphatic pathways in a human cadaver that underwent unilateral axillary dissection, suggesting that previously unrecognized pathways for cancer spread may be identified. Better understanding of the anatomic changes of the lymphatic vessels may shed light on the mechanism of cancer spread, and eventually lead to more effective management.

Lymphedema is a major clinical problem, and effective treatments are urgently needed. This work will provide the fundamental knowledge of lymphatic anatomy which may allow modification of operative techniques to reduce the risk of lymphedema.

Free Vascularized Supraclavicular Lymph Node Transfer: A New Option for Lymphedema Treatment

Ghazi A. Althubaiti, MD¹, David W. Chang, MD,²

¹ From the Section of Plastic Surgery, King Fahad Medical City, Riyadh, Saudi Arabia, and ² the Department of Plastic Surgery, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

Introduction

In this paper we describe the surgical technique for harvesting vascularized supra-clavicular lymph nodes. It is a new microvascular option that we have recently started to offer to our patients with extremity lymphedema.¹ The main advantage of the supraclavicular lymph node transfer is avoidance of lymphedema risk in the donor site that is a major potential concern with more commonly used lymph node transfers from the axilla or the groin.

Surgical technique

The supraclavicular skin is supplied by branches of the transverse cervical artery (TCA). The deep inferior cervical lymph nodes are closely related to the TCA and can be harvested as a component of this free flap.

The patient is placed in supine position with the neck slightly extended and rotated away from the procedure side. Outlines of the sternocleidomastoid muscle are marked. The skin paddle is then designed as a horizontal ellipse just above the upper edge of the clavicle. The flap is centered on the posterior border of the sternocleidomastoid muscle. The width of the flap is determined by comfortable pinch test that allows primary closure of the harvest site without tension.

The inferior skin is incised, and the dissection is carried out in the subcutaneous plain from lateral to medial in the interval between sternocleidomastoid and the anterior edge of trapezius muscle until the transverse cervical artery and vein are encountered. The deep inferior cervical lymph nodes are closely related to the transverse cervical artery and can be palpated and are harvested en-block with the pedicle. Once the main pedicle is identified; a pencil Doppler device is used to identify the skin perforators. The location of a perforator is usually marked on the skin to facilitate postoperative monitoring. An average of four perforators to the supraclavicular skin coming from the TCA can be identified.² However, there is no need to dissect individual perforators because it is not necessary and can carry the risk of injuring them.

Final dissection around the pedicle can be aided by retracting the posterior edge of the sternocleidomastoid muscle medially to visualize the proximal pedicle. The lateral extension of the transverse cervical artery is then divided just anterior to the anterior edge of trapezius muscle.

Superior flap edge of the flap is incised thereafter. The external jugular vein or some of its tributaries are usually encountered and should be protected and included in the flap to provide a back-up venous drainage system. Despite earlier studies that have shown that venous perforators drain into the superficial venous plexus rather than into the venae comitantes of TCA, we have found the vena comitantes of the TCA to provide reliable venous drainage.³

Once flap dissection is completed we direct our attention to the recipient limb.

Once the recipient site is ready, the flap is harvested and transferred to the recipient site.

This is followed by microvascular anastomosis of the transverse cervical vessels to the recipient vessels. The flap is inset to the recipient site. The donor site is closed primarily.

The Initial Results

Our initial results of these techniques are promising. We performed 4 procedures successfully on 3 patients with lower extremity lymphedema. One of the patients had bilateral lymphedema. No flap failure was encountered and we have documented measurable reduction in the extremities volume, softening of the affected limbs, and/or pain reductions; and no new infections occurred. Since our dissection is located mostly in the medial supraclavicular area, we

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don't encounter the spinal accessory nerve in our dissection, and we have not noticed any weakness in shoulder elevation after surgery.

Discussion

Commonly used options for microvascular lymph node transfer to treat extremity lymphedema includes transferring lymph nodes from the groin, axillary lymph nodes transfer and sub-mental lymph nodes transfer.⁴⁻⁸ Each of these techniques has potential drawbacks. Transferring lymph nodes from the axilla or the groin carries the potential risk of lymphedema in the donor limb. Sub-mental lymph nodes transfer can leave visible scar in the submandibular area and can carry the risk of injuring facial nerve branches. Based on our limited experience with supraclavicular lymph nodes transfer, we feel that this technique can provide acceptable scar and less donor site morbidity.

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Congress Update



Robert L. Walton, MD, FACS

As Host and Scientific Program Chair for the upcoming 7th biennial meeting of the World Society for Reconstructive Microsurgery, I welcome you to join us for a spectacular summer meeting in the heart of the US heartland, Chicago, Illinois, July 11-14, 2013.

A pre-meeting Symposium hosted by the American Society for Reconstructive Microsurgery on Thursday, July 11, 2013, will showcase research and clinical advances in reconstructive microsurgery and a video surgery session demonstrating flap dissection and operative techniques. In this Symposium, current reconstruction will be critically compared to the results obtained with Composite Vascularized Allograft transplants.

The formal WSRM program will commence on Friday July 12, 2013. The meeting will highlight new innovations in reconstructive microsurgery and complex reconstruction presented by world-renown reconstructive microsurgeons from over 30 countries. In addition to form and function, the meeting will showcase 'Aesthetic' as an integral aspect of the reconstructive effort with special focus on animation, sensibility, and bone/joint defect restoration. Our theme for 2013 is "Achieving Normal: The Ultimate Paradigm in Reconstructive Surgery". Panels, Invited lectures, and Consensus forums will critically address the utility and efficacy of contemporary reconstructive techniques in achieving 'normal'. Our Instructional Courses have been formulated to provide attendees direct "how-to" approaches to specific clinical problems and the management of common complications encountered during the reconstructive effort. Friday's Program will conclude with a Prize Competition for "Best NORMAL result in a Complex Reconstruction" (If you are interested in submitting a case for this competition, please sign up on-line at the WSRM website).

Notable conjoint highlights of the meeting include an Introduction by Dr. Thomas J Krizek on "Defining Normal in Reconstructive Surgery", a lecture by Dr. L. Scott Levin on "The History of Complex Reconstruction", an special lecture by noted genetic engineering pioneer, Professor Panayiotis Zavos, on "Cloning in Reconstructive Surgery: Fantasy vs. Reality?" and a panel that will address 'Alternatives to

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Autologous Reconstruction: Anaplastology and Robotic solutions in Complex Reconstruction' with invited presentations by Drs. David Reisberg of the Department of Anaplastology at the University of Illinois Chicago, and Dr. Todd Kuiken of the Rehabilitation Institute of Chicago.

The Scientific Program will conclude on Sunday, July 14, 2013 with a Panel: 'Group Consensus on Achieving Normal in Complex Reconstruction'. Attendees will participate in an open forum to debate specific questions regarding our achievements to date in Complex Reconstruction and to register opinions and consensus on current procedures utilized in reconstructive surgery. WSRM 2013 is intended to raise the bar in reconstructive surgery using a world stage. The topics will be insightful, controversial, entertaining, and most importantly, educational. It will change the way you think about Complex Reconstruction. We invite you to join us for this epic event.

Robert L. Walton, MD, FACS
Local Host/Scientific Program Chairman

Registration Now Open

Register Now for the WSRM 2013 Congress. Discounted rate ends May 10, 2013.

Discounted meeting registration fees are effective through May 10, 2013. After this date, registration fees will increase between \$60 - \$150 dollars. An additional fee will be added for onsite registrations. All registration fees are based on current membership status.

The meeting registration includes the following:

- Admission to ALL WSRM educational programming
- Access to mobile application
- Access to speaker presentations and presented abstracts
- Breakfast, lunch and refreshment breaks served during programming hours (see agenda)
- Access to Exhibit Hall
- 2013 World Congress Official Program
- Attendee list

Meeting registrants will also receive these additional benefits:

- Discounted hotel rates
- Opportunity to earn credits for *AMA/PRA Category 1 Credits™*

Additional Courses

The ASRM will be hosting a pre-symposium on Thursday, July 11, 2013 for an additional registration fee. See website for details.

Register Online: www.wsr2013.org

Housing Now Open

Fairmont Chicago, Millennium Park

The WSRM has reserved a special block of rooms at the host hotel Fairmont Chicago, Millennium Park. To obtain a reservation please visit www.wsr2013.org or call 1-800-526-2008. If you will be calling for a reservation please mention you are attending the World Congress 2013. The negotiated room rate is available until June 11, 2013 or until the room block is full. This time of year in Chicago there are many festivals going on and it is very popular time of year for travel to the city. Please make your reservations now to confirm your preferred accommodations.

Fairmont Room \$249 per night plus tax

Fairmont Double \$249 per night plus tax

Deluxe Room \$299 per night plus tax



“Achieving Normal: The Ultimate Paradigm in Reconstructive Surgery”

Join the *World Society for Reconstructive Microsurgery* in Chicago, Illinois for the **World Congress 2013, July 11 - 14, 2013.**

The Congress will feature new innovations in reconstructive microsurgery and complex reconstruction presented by world-renown reconstructive microsurgeons from over 30 countries. In addition, this meeting will highlight ‘Aesthetic’ as an integral aspect of the reconstructive effort with special focus on animation, sensibility, and bone/joint defect restoration.

A pre-meeting Symposium hosted by the *American Society for Reconstructive Microsurgery* on **Thursday, July 11, 2013**, will showcase research and clinical advances in reconstructive microsurgery and a video surgery session demonstrating flap dissection and operative techniques.

The Fairmont Chicago is a perfect backdrop for the Congress with it’s luxury accommodations and direct access to Chicago’s Magnificent Mile, Lake Michigan and top-rated restaurants all within arms reach.

Don’t miss this opportunity to visit Chicago and learn from the great innovators from around the world in reconstructive microsurgery!

Housing Open Until June 11, 2013 or until block is full. Reserve your room now to receive the discounted room rate.

Registration Open

Earlybird Discounted Registration Rates are effective **through May 10, 2013.**



www.wsrn2013.org





News from the Executive Council

The Executive Council of World Society of Reconstructive Microsurgery has been active with various issues over the last few months. Listed below is an update on a few of the items.

Kazuteru Doi, MD, PhD
President

- **WSRM 2013 in Chicago**

The 7th Congress of WSRM will be held on July 14 in Chicago through the great effort of local chairman, Prof. Robert Walton and the organizing committee. On this seventh congress of WSRM, Prof. Robert Walton, is planning a spectacular meeting that will highlight new innovations in reconstructive microsurgery, complex reconstruction focusing on aesthetics as an integral aspect of the reconstructive effort, and highlight animation, sensibility and motor restoration. The theme for this congress will be, "Achieving Normal: The Ultimate Paradigm in Reconstructive Surgery". I myself, and all the members of WSRM are excited to attend this revolutionary congress.



The purpose of this congress is to share our wealth of experience and knowledge among surgeons from all over the world, regarding the practice, new developments and new applications of microsurgical techniques. I hope that this congress will also offer an opportunity for all participants to form personal ties. Above all, I hope that this congress will enable you to exchange results, glean new ideas and create new projects that will drive the future progress of reconstructive microsurgery.

On behalf of the WSRM committee, I would like to thank the Chairman, Prof. Robert Walton and the members of the Local Organizing Committee for their effort in organizing the Congress.

I look forward to seeing you in "Windy City" soon.

- **The Inaugural Congress of the Asian-Pacific Federation of Societies for Reconstructive Microsurgery (APFSRM).**

The First Congress of APFSRM was held on October 8 and 9, 2012, in Singapore through the great effort of its two chairmen, Dr. Tan Soo Heong and Dr. Tan Bien Keem, and members of the Local Organizing Committee.

As the president of WSRM, I asked all societies and liaisons of reconstructive microsurgery in the Asian Pacific countries to establish the APFSRM, and after their extensive consultation with representatives of each country's society, the APFSRM was subsequently formed. Please, read the report of the 1st APFSRM. The Congress was well attended by more than 160 delegates from 20 countries and was a great success.

The first APFSRM Council Meeting held on October 8, 2012 was attended by 15 representatives from Japan, Korea, India, Hong Kong, Indonesia, Malaysia, Philippines and Singapore. Prof. Kyoung-Moo YANG from Korea was elected as the first President of the APFSRM. The Council has also nominated Prof. YANG as the regional delegate to the World Society for Reconstructive Microsurgery Council from APFSRM for 2013 to 2014. The logo for the APFSRM was also unveiled. The second Congress of the APFSRM will be held in Korea on 2014.

News from the Executive Council

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- **Site Visit on WSRM 2015 in Mumbai, India**

Preparations for the 8th Congress of WSRM are making steady progress by the great effort of local chairman, Prof. Ashok Gupta and secretary, Prof. Amresh Baliarsing, I and Prof. Scott Levin, president-elect of WSRM, through the generosity of Prof. Ashok Gupta and Prof. Amresh Baliarsing, will visit Mumbai during the congress of the International Federation of Societies for Surgery of the Hand (IFSSH) in New Delhi on March to inspect their arrangements including location of convention center, hotel, transportation and so on. We will report our visit on the next issue of the newsletter.

- **Quick Approval of New Membership Application**

By the great efforts of Prof. Scott Levin, Chairman of Membership Committee, and the Committee members, membership application can now be examined during the on-line committee meeting every month and approval can be decided. In the previous years, it would have taken more than a year from application to approval because of the annual committee meeting being held on site. Quick approval of new membership applications should accelerate the growth of WSRM members. This year, we have already approved 69 new members.

- **Regular Subscription of Online Journal of Reconstructive Microsurgery (JRM).**

After discussion with Thieme's publisher in January 2012, the online Journal of Reconstructive Microsurgery (JRM) is being sent regularly, complete and without delay. If anyone has not received the online-journal, please inform the Central Office of WSRM.

- **New Prime Minister of Japan, Mr. Shinzo Abe**

I think that all former attendees of WSRM 2009 in Okinawa, Japan will remember Mr. Shinzo Abe, who was then the 90th prime minister of Japan and gave us a speech as a main guest during the congress banquet. Mr. Shinzo Abe has returned as the 96th prime minister of the new cabinet of the Japanese Government. Please, congratulate his success and expect his forthcoming works.

Meeting Preview



WSRM 2015

VIII Congress of the World Society for Reconstructive Microsurgery

Mumbai, India

March 19 – 21, 2015

The microsurgeons of India are very grateful to the international community for giving the opportunity to host the 2015 congress in Mumbai, India. Please mark your calendars for Thursday, March 19 – Saturday, March 21. The scientific committee will be chaired by Dr. Raja Sabapathy. The themes of the meeting are "Pediatric Microsurgery" and "Evolving Technology: Looking Beyond". The local committee chaired by Prof. Ashok Gupta and Dr. Amresh Baliarsing are taking all efforts to make it an event to remember.

Mumbai (old name BOMBAY) is a metropolis and is an island city on the west coast of the country and the month of March is ideally suited for the congress and the weather is pleasant and most conducive in this period. The city is the business and venture capital of India and has the state of the art facilities to hold international meets as are the need of the WSRM. Travel (International, Domestic and Local), Accommodation, Conferencing and Ancillary tours and travels for all faculty as well as the participants can be comprehensively catered to from the city.

Liaison Update

The 1st Lebanese Hand and Reconstructive Surgery Conference

The Lebanese Society of Reconstructive Microsurgery (LSRM) has successfully held in close collaboration with the Lebanese Society of Plastic, Reconstructive and Aesthetic Surgery (LSPRAS) the 1st Lebanese Hand and Reconstructive Surgery Conference on November 17 and 18, 2012 in Beirut, Lebanon, despite the troubled political and security climate in the whole region. The conference was endorsed by the World Society for Reconstructive Microsurgery (WSRM), the Euro-Mediterranean Council for Burns and Fire Disasters (MBC), and the Association of Plastic Surgeons of Lebanese Descent (APSLD).

LSRM was established by an official ministerial decree in 1995. Since that date and in collaboration with LSPRAS as well as with other Lebanese societies, LSRM activities included the organization of a local Microsurgery Conference and numerous Microsurgery Sessions to which several pioneers of Reconstructive Microsurgery have been invited such as H. Millesi, V. Meyer, J. Baudet, M. Merle, E. Biemer, J. Terzis, R. Khouri, and S. Moran, just to name few. It has also financially supported several Lebanese residents to train in microsurgical techniques. At present, it is at the dawn of a new revival by organizing its first major international reconstructive microsurgery conference in Beirut.

Regrettably, few international speakers have cancelled their participation; nevertheless, the scientific program has not been much affected and was designated by the American Medical Association and Cleveland Clinic Foundation for a total of 17.5 category one CME credits. The wide range of topics presented in this conference included in addition to hand surgery, reconstruction of upper and lower extremities, head and neck reconstruction, breast reconstruction, and reconstruction of burn contractures, sessions about microsurgical training and alloplastic composite tissue transplantation. The faculty was comprised of prominent speakers from France, Belgium, Italy, Greece, England, Germany, Switzerland, India and Lebanon including Jacques Baudet, Panayotis Soucacos, Nadey Hakim, Phillip Blondeel, Peter Vogt, Pierluigi Tos, Wassim Raffoul, and Krishna Kumar, just to name few. At the conclusion of his presentation, Dr. Michel Moutran from Lyon, France, regretted that some speakers, scared by news reports and official releases and directives concerning



possible security threats, have cancelled their participation. He asked the many foreign speakers present to be sincere ambassadors of LSRM and carry Lebanon in their hearts to testify that despite all odds Beirut remains as safe as any other city in Europe or north America and that its legendary vibrant and dynamic way of life never changes.

Many Lebanese Orthopedic and Plastic surgeons attended the conference in addition to most Residents of both specialties in the major Lebanese Medical Schools. The Lebanese Society of Reconstructive Microsurgery spared no effort to make every foreign speaker and participant feel at home. A Gala Dinner took place in the elegant settings of the most exclusive Phoenecia Hotel in Beirut and was highly appreciated by all participants. Following the success of this 1st conference, plans for the second conference are already underway. ■

The Romanian postgraduate training program in reconstructive microsurgery - An annual report from the Romanian Society for Reconstructive Microsurgery.

During the year 2012, the postgraduate training program in reconstructive microsurgery of the Romanian Society for Reconstructive Microsurgery (RSRM) has achieved several important milestones, thus improving its relevance and visibility at the international level.

The 1st Practical Seminar for Perforator Flap Dissection in Living Tissue, Nov 15-16, 2012, Timisoara, Romania

During November 15-16, at the Pius Branzu Center for Laparoscopic Surgery and Microsurgery RSRM has organized in Timisoara, the 1st International Practical Seminar of Perforator Flap Harvesting in Living Tissue. This course was held under the auspices of the Victor Babes University of Medicine and Pharmacy, with the endorsement of the World Society for Reconstructive Microsurgery (WSRM), European Microsurgical Research and Training Association (EMTRA) and the European Board for Plastic, Reconstructive and Aesthetic Surgery (EBOPRAS).

Using state-of-the-art OR facilities available at the Pius Branzu Center for Laparoscopic Surgery and Microsurgery (www.pius-branzu-center.ro), 10 participants from Italy and Romania, had the opportunity to train in perforator flap harvesting using live animal models (pigs). During the 2-day seminar, each trainee has raised a total of 6 different perforator flaps under the guidance of esteemed experts in reconstructive microsurgery - Dr. Andrea Spano (Istituto dei Tumori, Milan, Italy); Dr. Marco Pignatti (University of Modena, Italy), Prof. Alexandru Georgescu (Cluj-Napoca, Romania); Dr. Nicolae Ghetu (Iasi, Romania) Assoc. Prof. Lucian P. Jiga (Timisoara, Romania) and Prof. Mihai Ionac (Timisoara, Romania).

Considering the overall feedback received from our participants, the course was an absolute success and it will be implemented as of 2013, as an official training module of the Romanian postgraduate training program in reconstructive microsurgery along with the other already existing modules of basic, advanced microsurgery and flap dissection.



The faculty of the course (from left to right): Dr. Alex Nistor, Assoc. Prof. Lucian Jiga, Prof. Alexandru Georgescu, Dr. Marco Pignatti, Prof. Mihai Ionac



The final group picture

The 2nd Werner Spingler Training Fellowship in Microsurgery

Continuing its tradition, in 2012, RSRM has hosted in partnership with the Swiss company S&T AG, the 2nd contest for the Werner Spingler Training Fellowship in Microsurgery. This fellowship program was initiated in 2011 and is awarded once a year to young motivated surgeons showing talent and dedication to microsurgery.

Applications for this program are accepted continuously, each year from May to September. The price (1000 EUR) covers the participation of the winner "all-expenses paid" at the next edition of the practical seminar in basic microsurgery due to be held in March the upcoming year.

Detailed information about the fellowship can be found by visiting the official RSRM website at www.srmr.org.



(From left to right): Prof. Mihai Ionac, Dr. Lorenz Larcher, Mr. Werner Spingler, Mr. Markus Spingler, Assoc. Prof. Lucian P. Jiga

This year the fellowship was awarded to Dr. Lorenz Larcher, resident in Plastic and Reconstructive Surgery from Salzburg, Austria.

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American Society for Reconstructive Transplantation (ASRT)

In November 15-17, 2012, the American Society for Reconstructive Transplantation, ASRT, held its biennial meeting at the Drake Hotel in Chicago, Illinois. The meeting was a great success and showcased new innovations in the basic science of immunosuppression. As during its previous meeting, ASRT invited CVA transplant patients to attend and interact with the attendees which proved to be a great hit that was both educational and revealed a human side to the transplant experience. During the meeting, ASRT approved new guidelines for *Medical Necessity Determination* for Partial or Full Face transplantation and *Medical Necessity Determination* for transplantation of the Hand and/or Upper Extremity. Please visit www.a-s-r-t.com to view these guidelines.



The ASRT Annual Cadaver Workshop is conveniently being held the weekend following the WSRM Congress, July 20-21, 2013. This

workshop will be located in Philadelphia, at the University of Pennsylvania Human Tissue Laboratory. Organized by L. Scott Levin, MD, FACS, the workshop will host an international faculty, utilizing fresh cadavers in a hands-on workshop to instruct attendees in proven techniques for face and hand/arm transplant harvest, surgical sequence, recipient preparation, donor procurement strategies, and team assembly principles.

American Society for Lymphatic Surgery (ASLS)

The formation of the American Society for Lymphatic Surgery (ASLS) was recently announced at ASRM 2013. Membership will be open to all international and domestic colleagues at the WSRM meeting in Chicago. The purpose of this new society is to advance the science, treatment, and prevention of lymphedema, to provide education for the safe and responsible practice of lymphatic surgery, to increase public awareness, and to advocate for patients. The first meeting will be held during ASRM 2014 in Kauai. To join our mailing list, please send us your contact information by logging on to ASLS.org



American Society for Reconstructive Microsurgery (ASRM)

The ASRM held their annual meeting in Naples, Florida, January 12-15, 2013. The ASRM aspired to bring different disciplines together to highlight the latest advances in reconstructive microsurgery. Dr. Michael Neumeister, President of the ASRM, stated "The meeting was highly attended and had record international participation which is a testament to the greater global interest and outreach in microsurgery".

ASRM Day Microsurgery Symposium

An "ASRM Day" Symposium will precede the WSRM 2013 Congress on Thursday, July 11 at the Fairmont Hotel, Chicago, Illinois. As the national organization for Reconstructive Microsurgery and Complex Reconstruction in the United States, the ASRM is honored to endorse the WSRM Biennial Meeting and looks forward to the opportunity to serve as the 'Opening Act' for the Congress activities in the Windy City. The ASRM Day program is designed to complement the theme and content of the WSRM scientific program and will emphasize new innovations in reconstructive microsurgery pioneered by members of the ASRM. The morning program will comprise a video surgery session narrated by the author/ surgeon with audience interaction. The afternoon will provide opportunity for lively debate in two clinical panels on head & neck reconstruction and lower limb salvage. Microsurgical, transplant, and non-microsurgical techniques will be pitted each against the other to highlight similarities, differences, morbidities, and qualities of outcome amongst the different approaches to management. Please plan to attend the ASRM Symposium on Thursday, July 11, 2013 at the Fairmont Chicago, Millennium Park. ■

Interesting Case

An Interesting Case of Massive Sacral Chordoma Resection and Reconstruction with Multiple Flaps

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Case report

A 52-year-old male presented with a mass in the sacral region. An MRI scan of the pelvis revealed a 18 x 20 x 16cm tumor arising from the sacrum with involving the overlying gluteal muscles and skin, the posterior wall of the rectum and encasing both internal iliac arteries (Fig. 1a). An open biopsy confirmed the diagnosis of sacral chordoma. Pre-operative embolization of tumor feeding vessels was done 24 hours prior to tumor resection and reconstruction.

Before the procedure, the senior author and resecting surgeons discussed the operative and post-operative plan at length. The patient was warned of a prolonged period in prone position, and a special pressure-relieving mattress was designed to minimize pressure on the planned stoma in the left iliac fossa.

Procedure

The patient was placed in supine position and both ureters were stented. A right-sided rectus abdominus myocutaneous flap was raised with combined vertical and oblique skin paddles (OVRAM flap) measuring 20x7cm. Through this incision, both involved internal iliac arteries were ligated and the an abdomino-perineal resection of the rectum and sigmoid colon was initiated. An end-colostomy was fashioned in the left iliac fossa.

The OVRAM flap was parked in the pelvis, the rectus sheath and abdominal skin were closed. and the patient was turned to a prone position.

The surgical teams continued en bloc resection of the tumor and involved colon, performing sacral osteotomies at the level of S1 to complete a near total sacrectomy (Fig. 1b). Simultaneously, a left free latissimus dorsi (LD) myocutaneous flap with a 23x10cm skin paddle was raised by the plastic surgical team. Completion of tumor resection resulted in a massive 12096cm³ posterior pelvic defect. The overlying gluteal muscles had been almost completely resected and the skin defect measured 529cm² (23 x 23cm) involving the perineal region (Fig. 1c).

Microvascular anastomosis of the thoracodorsal vessels of the free LD flap was direct to the pubic branch of the left inferior epigastric artery as it anastomosed with the remnant obturator artery. The muscle component of the free LD flap was used to obliterate the massive dead space within the pelvis. The skin paddle of the OVRAM flap covered the remnant left iliac bone, and perineum. A right-sided gluteal/posterior thigh myofasciocutaneous (GPT) flap was transposed to cover the right remnant iliac bone. Closure was done over suction drains to the pelvic and perineal regions. Total operative time was 28 hours.

Post-operative care and outcome

The patient was nursed prone for 4 weeks with a strict pressure-relieving protocol. His mattress had been designed pre-operatively to accommodate the stoma in the left iliac fossa, and to relieve pressure on the chest and bony pressure points. Drains were kept for a minimum 2 weeks. He could practice standing at 1 month post-procedure. He was allowed to sit on his flaps 2 months post-operatively when his wounds had completely healed (Fig. 2). At 3 months after surgery, he was ambulating slowly with walking aids and able to sit on a chair. Final histology showed sacral chordoma involving overlying skin and muscle and abutting the rectum with clear resection margins.

Discussion

Current recommended treatment for sacral chordomas is en bloc resection with clear margins. Post-resection defects can be very large, and soft tissue reconstruction should be tailored to defect volume to obliterate pelvic dead space and maximize outcomes while minimizing complications¹.

Gluteus maximus flaps have been well described in the literature for coverage of sacral chordoma defects^{2,3}.

However, in our case the muscles on both sides were almost completely resected. The transpelvic rectus abdominus flap provides sizable tissue for coverage of posterior defects. Recent literature has shown this flap to be reliable and robust in patients with minimal complications⁴. When local or pedicled tissue is not available, free flap reconstruction can be considered. When no gluteal arteries are available (as in our case when the internal iliac artery was ligated), branches of the external iliac or femoral artery can be used although they are difficult to isolate and commonly require vein grafts⁵.

This case highlights the following:

1. Pre-operative planning and communication between all teams involved.
2. The absence of local tissue and use of multiple flaps to reconstruct a massive sacral defect.
3. Selection of recipient vessels in the sacral region.
4. Careful post-operative care to take into account long surgery, need for ICU care and special pressure-relieving measures to accommodate a prolonged period in prone position.

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Figure legends

Figure 1a. T1-weighted MRI scan showing sacral chordoma involving the rectum, gluteal muscles and overlying skin, b) en bloc tumor resection with overlying muscle and soft tissue and abdomino-perineal resection of rectum and sigmoid colon, c) massive post-resection defect with anterior abdominal drain exposing pelvic structures and remnant sacrum(*)

Figure 2. At 2 months post-procedure, flaps had healed well and patient was allowed to weight bear on his buttocks. Skin paddles of the 3 flaps are indicated (OVRAM = transpelvic oblique/vertical rectus abdominis myocutaneous flap, LD = free latissimus dorsi flap, GPT = gluteal/posterior thigh transposition flap)

Mini Review

Microsurgery and Lymphedema

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Background

Lymphedema, the pathologic accumulation of protein-rich fluid in the interstitial space, is a consequence of congenital (primary) or acquired (secondary) derangements in the drainage patterns of the lymphatic system. Worldwide the most common etiology of secondary lymphedema is filariasis (affecting 14 million people), although in developed countries this condition is essentially nonexistent, leaving malignancies and their related treatments (i.e. surgery and radiation) to account for the majority of cases, which may exceed three million in the USA [1]. Cancer-related lymphedema most frequently affects the upper extremity, namely by its association with breast cancer therapy. A prospective study of American females documented a 42% cumulative incidence of lymphedema following treatment for breast cancer [2]. Lower extremity lymphedema is associated with lymphadenectomy procedures for melanoma and radiotherapy for gynecologic and genitourinary malignancies. Head and neck cancer treatment can also cause a regional lymphedema of the face and neck, a disfiguring yet poorly defined entity. Trauma, obesity, and chronic venous insufficiency may also contribute to the overall incidence.

There is no cure for lymphedema. Conservative management provides the mainstay of treatment, and without it lymphedema can evolve into progressive swelling, fibrosis, functional deficits, and chronic infections, thus adversely affecting quality of life and health care costs [3,4]. Complete decongestive therapy (CDT) is the main method of non-pharmacologic/non-surgical treatment, consisting of manual lymphatic drainage with light massage, application of low stretch compression bandages, exercise, and skin care, sometimes supplemented with intermittent pneumatic compression pumps. In addition to being costly and time consuming, these modalities are only palliative and are used only to provide symptomatic relief and prevent progression of the lymphedema.

With regard to the inherent challenges of these management strategies, significant interest has been placed on developing reliable techniques for surgical intervention. Unfortunately, very few prospective or controlled studies analyzing these surgical procedures

Mini Review - *continued from pg 11*

have been performed, and few reports compare different approaches, making it difficult to draw conclusions about their relative efficacy. Furthermore, there is no consensus on the indications for which procedure to perform, when to intervene, or how to comparatively grade outcomes [5].

Generally speaking, surgical techniques can be described as either reductive or physiologic in their approach [6]. Reductive methods, which include direct excision (Charles procedure) or circumferential liposuction, aim to debulk lymphedematous tissue. Physiologic methods on the other hand, such as vascularized lymph node transfer or lymphatic bypass, attempt to restore lymphatic drainage by reconstructing conduits for unimpeded flow. The advents of microsurgery, and more recently supermicrosurgery, have had a major impact on the evolution of these physiologic procedures.

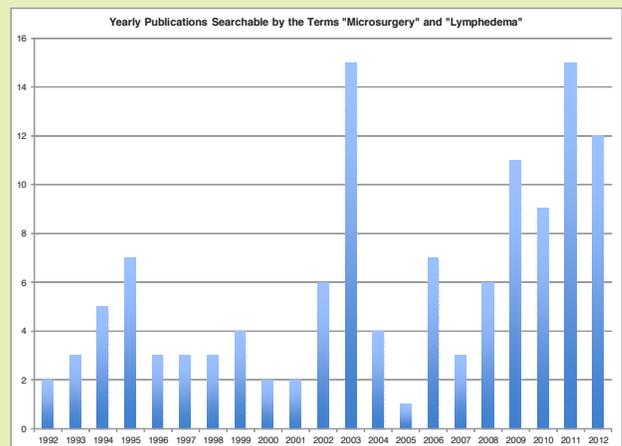
A search on Pubmed of the terms microsurgery and lymphedema reveals a sustained rise in the number of related publications over the past few years (Figure 1). This trend may suggest that microsurgical procedures to treat lymphedema are being performed in greater numbers across the globe, perhaps by a widening pool of microsurgeons interested in these techniques. At MD Anderson Cancer Center in Houston, Texas, significantly more interest is being paid to the microsurgical treatment of lymphedema, with 21 lymphaticovenular bypasses performed this year, up from 14 the year before.

Lymphatic Bypass

Microsurgical reconstructions of the lymphatic architecture have been reported since the 1960s, and have included attempts at placing interposition grafts to reroute flow from obstructed lymphatic vessels to healthy ones (lymphaticolymphatic bypass), as well as procedures to shunt obstructed lymphatic vessels directly into the venous circulation (lymphaticovenous bypass). The significant experience of Campisi's group in Genoa, Italy includes over 1800 lymphatic bypasses of various types in both the upper and lower extremities, and they retrospectively report a 67% reduction in postoperative limb volume, with 85% of patients eventually discontinuing conservative treatment modalities [7]. Interestingly, this group has also recently attempted to surgically prevent lymphedema by performing anastomoses between lymphatic vessels in the arm with branches of the axillary vein at the

time of axillary lymphadenectomy for breast cancer treatment, and report statistically significant differences in postoperative arm volumes of treated patients versus controls [8].

Koshima's group in Tokyo, Japan markedly refined the technique of lymphaticovenous anastomosis in 2000 by bypassing distal subdermal lymphatic vessels to adjacent subdermal venules, instead of large superficial veins, thus mitigating the problem of venous backflow [9]. This technique is known as supermicrosurgery since anastomoses are performed between vessels less than 0.8 mm in diameter, using 11-0 or 12-0 suture. These lymphaticovenular bypasses are typically performed through incisions 2-3 cm in length placed on the distal half of the affected extremity. Often, two to six bypasses are performed, which may take up to six hours to complete. A recent prospective study by Chang at MD Anderson Cancer Center showed that after lymphaticovenular bypass in the upper extremity for lymphedema secondary to breast cancer treatment, 35% mean volume reduction was noted at one year, with 95% of patients reporting symptomatic improvement [10]. Furthermore, no patients experienced postoperative complications of lymphedema exacerbation.



A recent technological advance in lymphaticovenular bypass has been the use of indocyanine green fluorescent lymphography. The technique employs the use of a near-infrared-emitting camera (Hamamatsu Photonics K.K., Hamamatsu, Japan) that can detect lymphatic structures up to 10 mm beneath the skin surface after subdermal injection of the indocyanine green dye, and has been used to describe a lymphedema staging scale based on dermal backflow patterns [11]. The indocyanine green system can also be used to precisely plan incisions directly over lymphatic vessels to be bypassed, substantially improving the technical ease of the procedure [12]

Vascularized Lymph Node Transfer

Vascularized lymph node transfer is another reconstructive option for lymphedema which involves microsurgical arterial and venous (but not lymphatic) anastomoses to a transplanted flap containing superficial lymph nodes. The axilla may be used as the recipient bed, which allows surgical release of scar tissue in the area, and exposes the thoracodorsal vessels as recipients. A flap containing lymph nodes can then be harvested typically from either the cervical region, based on branches of the transverse cervical artery or from the inguinal region, based on branches of the superficial circumflex iliac or superficial inferior epigastric vessels [13]. Becker's group in Paris, France has performed over 1500 vascularized lymph node transfers, and in a 2006 study they report 42% of patients upper limb volume returning to normal in addition to 63% of patients being able to discontinue conservative therapy postoperatively [14]. Saaristo's group in Turku, Finland has shown that inguinal lymph node flaps may be transferred in continuity with an abdominal-based flap for breast reconstruction, yielding positive effects on patients with preoperative lymphedema [15]. In addition, they have also recently demonstrated that donor site lymphatic function in the groin is preserved after harvest, without causing changes in lower limb circumference, particularly if only lymphatic tissue lateral to the femoral vessels is harvested [16].

Interestingly, a report from Chang Gung Memorial Hospital in Taiwan described a series of patients who underwent vascularized groin lymph node transfer for postmastectomy upper extremity lymphedema with transfer of the flap to the dorsal wrist, significantly reducing limb volume rates by 51% [17]. One theory posed by the authors to explain the mechanism of vascularized lymph node transfer, particularly to a distal site such as the wrist, is by a lymphatic pump. This hypothesis states that lymphatic clearance of the lymphedematous limb is driven by the high-pressure inflow of the arterial anastomosis (in this case, from the radial artery), which provides a strong hydrostatic force acting as a *lymphatic pump* into the lymph node flap. The suction is continued by the large-caliber, superficially located, low-pressure venous drainage provided by the cephalic vein.

Conclusions

Worldwide interest in using microsurgical procedures to treat lymphedema is gaining momentum. With this, new research and refinements in technique are on the horizon. At our institution we are participating in this trend by currently analyzing postoperative changes in dermal backflow patterns using ICG lymphography, and pushing supermicrosurgery into a new realm of precision using a surgical robot. However, despite the promise of these

procedures much work still needs to be done to properly study their outcomes with more extensive prospective and controlled clinical trials.

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Membership News

Utilizing your membership to its fullest!

Given the state of today's economy and the need to coordinate world-wide community efforts, the use of websites and social media are very important. The WSRM website has been built to function as a networking outlet and organization communication tool. As a member you have access to the discussion boards, online membership roster, upcoming meeting information, official WSRM newsletter and the ability to pay your membership dues online. You do not have to log in to pay your dues.

What is the benefit of being a member of the WSRM?

In addition to the cyber benefits noted above, each member receives reduced registration rates at the society meetings, volunteer leadership opportunities, liaison with multiple organizations, network with worldwide reconstructive surgeons and all dues paying members will receive a one year subscription to the e-online Journal of Reconstructive Microsurgery. To continue to receive these benefits and assist the organization and growing these benefits in the future, please keep your dues up to date.

As with all organizations, you as a member are very important to us and we want to be sure we are able to communicate with you effectively. Validating the membership roster is a continual process. Please take a moment and go to <http://wsrm.net/images//11.12wsrm%20roster.pdf> to view your contact information posted on the membership roster. If this information is incorrect, please send the revised information to jessicareynertson@isms.org. We appreciate you taking the time to do this.

Know someone who wants to become a member?

The application process is simple and applications can be obtained online and submitted via email, mail or fax to the Central Office. The ability to download a membership application to provide to a colleague is available on the website.

APPLICATIONS RECEIVED BY APRIL 16 WILL BE ELIGIBLE TO PAY THE MEMBER RATE AT THE WSRM 2013 CONGRESS IN CHICAGO, ILLINOIS. THIS IS A SAVINGS OF \$200.

Society Portrait

Asian Pacific Federation of Societies for Reconstructive Microsurgery (APFSRM)

It gives me great pleasure to announce the formation of the Asian Pacific Federation of Societies for Reconstructive Microsurgery (APFSRM). The Federation held its Inaugural Congress in Singapore from 8th to 9th October 2012 with the theme "Artistry in Reconstructive Microsurgery." The Congress was well attended by more than 160 delegates from 20 countries. There were 6 Plenary Lectures, 2 Lunch Symposia and more than 100 oral presentations; providing a broad as well as in depth examination of issues in Reconstructive Microsurgery.

The first APFSRM Council Meeting was held on 8th October 2012 and was attended by 15 representatives from Japan, Korea, India, Hong Kong, Indonesia, Malaysia, Philippines and Singapore. Prof Kyoung-Moo YANG from Korea was elected as the first President of the APFSRM. The Council has also nominated Prof YANG as the regional delegate to the World Society for Reconstructive Microsurgery Council from APFSRM for 2013 to 2014. The logo for the APFSRM was also unveiled. The second Congress of the APFSRM will be held in Korea, 2014.

The President of the WSRM, Kazuteru DOI, MD, PhD first mooted the formation of a federation of local societies for reconstructive microsurgery in the Asian Pacific countries. After extensive consultation with representatives of each country's society, the APFSRM was subsequently formed.

The APFSRM aims to advance the specialty of Reconstructive Microsurgery in the Asia Pacific region through closer collaboration, training and education. It will enhance the opportunity of Reconstructive Microsurgery training through friendly exchange programs and organizing scientific meetings and regional instructional courses.

Soo-Heong TAN, Co-chairman
 Bien-Keem TAN, Co-chairman
 Inaugural Congress of APFSRM

Mark Your Calendar

Future WSRM Congresses



2013 WSRM World Congress
 July 11-14, 2013
 Chicago, Illinois, USA
www.wsrm2013.org

2015 WSRM World Congress
 March, 2015
 Mumbai, India

2017 WSRM World Congress
 Summer, 2017
 Seoul, Korea

2019 WSRM World Congress
 Summer, 2019
 Shanghai, China

Global Meetings*

*The posting of these meetings does not define the WSRM as a sponsor or endorser.

IPRAS
 February 24 - March 1, 2013
 Santiago, Chile
Maria.petsa@zita-congress.gr

13th Triennial Congress of The International Federation of Societies for Surgery of The Hand (Ifssh) and 9th Triennial Congress of The International Federation of Societies for Hand Therapy (Ifsht)
 March 4 -8, 2013
 New Delhi, India
www.ifssh-ifsht2013.com/home.php

24th Annual Euraps Meeting
 May 23 - 25, 2013
 Vienna, Austria
www.euraps.org/meetings

American Society of Plastic Surgeons
 Annual Meeting
 October 11-15, 2013
 San Diego, California
www.plasticsurgeon.org

American Society for Reconstructive Microsurgery
 January 11-14, 2014
 Kauai, Hawaii
www.microsurg.org

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World Society for Reconstructive Microsurgery

Volume 3

Spring /Summer 2013

Purpose

The object of the Society shall be to stimulate and advance knowledge of the science and art of Microsurgery and thereby improve and elevate the standards of practice in this field of surgical endeavor. The Society shall be the highest medium of recognition in the field of Microsurgery as evident by superior attainment and by contribution to its advancement. It shall provide an international forum for the exchange of ideas and the dissemination of innovative techniques.

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