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RECONSTRUCTIVE MICROSURGERY

The New Master Series Marks Another Innovation for the Annual Meeting

In what seems like only a few short weeks, I will be welcoming all of you to the 21st Annual Meeting of the American Society for Reconstructive Microsurgery, January 15-18, 2005, in Fajardo, Puerto Rico. This year's program represents a refreshing departure from the traditional meeting schedule. The number of panels and instructional courses has been increased again this year in response to both the expressed interest in these preferred formats by our Society members as well as to the generous participation of our invited national and international microsurgery and complex reconstruction experts. The first two days of the meeting are again conjoint sessions with the American Association for Hand Surgery and the American Society for Peripheral Nerve respectively. Our ongoing collegial collaboration with these Societies on Saturday and Sunday features outstanding instructional courses and controversial panel discussions.

Of particular interest this year is the new Master Series in Microsurgery offered on Saturday. This interactive video forum will highlight complex flap elevation techniques performed by well known international experts in concert with discussant-led audience participation. Also new this year will be scientific sessions held concurrently on Sunday and Monday to optimally encompass a vast array of clinical and basic science study presentations featuring invited discussants from our international membership.



Come to Puerto Rico!

With hurricane damage in Florida, the meeting location was moved to the El Conquistador Resort & Golden Door Spa in Fajardo, Puerto Rico. For more meeting information and the Program at a Glance, turn to page 6.



**Geoffrey Robb, MD,
FACS, 2005
Program Chair**

We are honored to have the Founder's Lecture given this year by Dr. Isao Koshima from the University of Tokyo, Japan. The Godina Lecture will be presented by this year's fellow, Dr. Michael Neumeister. In addition, Dr. Ian Taylor will be the first honoree to deliver the highly regarded Buncke Lecture and there will also be a special President's Invited Lecture to be given by Dr. Gary Burget from Chicago.

The Annual Day at the Links tournament, to be held on Saturday, will once again satisfy the golf enthusiasts' competitive spirits, and

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Zone of Injury

(You are correct! A double "n" title)

Members of the American Society for Reconstructive Microsurgery understand only too well the concept of the "zone of injury" when it applies to "coverage of lower extremity soft tissue defects". As can be determined from the spelling of this deformity, it rarely requires thoughts of the "n" word. "Free flap" is, of course, without the "n". Nevertheless, at the 2005 meeting of ASRM, there will be a panel on innervated (double bonus points for the double "n" word) free flaps. Hopefully, a rationale will evolve for when it is necessary to put the "n" into our free flap reconstructions. Regions for consideration will be the Head 'N Neck (bolus manipulation and deglutition), Trunk (breast sensibility), Hand (tactile sensibility), and Plantar Foot (protective sensation).

But how does the zone of injury apply to the peripheral nerve? The recent hurricane season offers insight. The eye of the storm is the focus. Intensity diminishes in an outward spiral. When Florida bore the most force, there were deaths in adjacent states from tornados and flooding. Even more distant, in the Carolinas, there was still a great down pouring of rain. If you were to find a state sufficiently distant from hurricane Ivan, you would have to go quite distant from the focus of the storm, as its great wind velocity extended its reach far and wide. The Federal Emergency Management Agency (four "n"s: they have a lot of nerve), FEMA, had to provide coverage over a wide area. If hurricane Ivan were a Gustillo IIIB lower extremity injury, with water pipes breaks (without the "n"), the water repair services would have to supply pipes from far away. The application to vessels for micro-

EDITOR'S MESSAGE



A. Lee Dellon, MD

In Microsurgery, the "N" surely would represent the concepts of "new", "novel", "newsworthy", and "noble"

surgery is to use vascular grafts (without the "n"). How does this lesson apply to the peripheral nerve?

A traditional problem for the reconstructive microsurgeon is the peroneal nerve at the knee. Trauma to the knee region usually evokes the musculoskeletal group of doctors ("orthopods"). Musculoskeletal problems are corrected almost immediately (without the "n"). If there is a foot drop (surprisingly without the requisite "n"), the classics say to observe the foot drop for up to 24 weeks (without the "n")! When explored and repaired or grafted by our most knowledgeable microsurgeons, the literature results are, sadly, quite poor (appropriately, without the "n"). In my own personal experience, results for nerve reconstruction of the common peroneal nerve at

the knee are not good (lots of "n"). Why is this? Surely this nerve is not any different than any other nerve. When we apply the zone of injury principal to this location, we realize that the damage to the nerve that we observe extending from several centimeters proximal to the fibular neck must extend distally as well. If we look distally, beneath the peroneus muscle belly, we observe that there are numerous minute branches of the common peroneal innervating the tibialis anterior and the toe extensors (watch out, lots of "n"!). The force of the stretch/traction injury must extend into this delicate region, producing scarring that interferes with neural regeneration of the neural sprouts into the motor end plates. Considering the analogy to the water pipes, we probably need not

RECONSTRUCTIVE MICROSURGERY

The mission of the American Society for Reconstructive Microsurgery is to promote, encourage, foster and advance the art and science of reconstructive micro-neurovascular surgery; and to establish a forum for teaching, research and free discussion of reconstructive microsurgical methods and principles among members.

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only new pipes, but distal new runoffs as well. Perhaps the answer to this zone of injury problem is to neurotize directly the muscle with the nerve grafts. Next time I get the chance, I will. How about you?

The most common zone of injury problem for the peripheral nerve is the laceration created by anything other than a scalpel. Larry Zachary, MD (now at the U. of Chicago) and I, during his hand surgery fellowship (not enough "n" in most fellowships) in Baltimore, created a model of sciatic nerve injury that ranged from a #15 blade, to a cast cutter, to an avulsion in terms of force. The results were that the final zone of injury could not be determined for three weeks, and that the zone of injury was proportional to the force. Not surprisingly, this implies that an amount of nerve must be resected in proportion to the mechanism of injury: resect a little for sharp knife, more for the width of glass or a vibrating saw, and resect the most nerve for an avulsion injury. The most common reason for failure in nerve reconstruction, in my personal view, is not the patient's age, but the failure to resect sufficient damaged nerve so that the reconstruction is done outside the zone of injury. This will clearly require a nerve graft or bioabsorbable neural conduit.

A final example. In September, 2004, I traveled to Ecuador to operate on problems related to *Mycobacterium leprae*, leprosy. While there is no "n" in "*Mycobacterium leprae*", or in "leprosy", there are two of them in Hansen's disease. And there is another in the Damien House in which we examined the patients. Perhaps this is because historically leprosy was thought to be a disease of tissue wasting: thus the missing "n". It was Paul Brand, MD, whose investigations in India led to an understanding of

SOCIETY NEWS

ASRM Member Recipient of Jacobson Innovation Award

Harry J. Buncke, MD, FACS, is the recipient of the Jacobson Innovation Award of the American College of Surgeons for 2004. Dr. Buncke received the award in honor of his unprecedented work in the field of microsurgery and replantation. Often called "the father of microsurgery", Dr. Buncke and his colleagues were the first surgeons to perform many microsurgical procedures, including the first great toe-to-thumb transplant in the US, the first successful scalp replant in the US, the first four-finger replant in the US, and the first successful tongue replant in the world. He is currently the director of the division of microsurgical replantation at the Ralph K. Davies Medical Center, in San Francisco.



Harry J. Buncke, MD

American College of Surgeons, Chicago. The purpose of the award is to honor living surgeons, or surgical teams, who have been innovators of a new development or technique in any field of surgery. Fellow recipients of this award over the past two years include Dr. Robert H. Bartlett a pioneer in the development and establishment of the first extracorporeal membrane oxygenation program and Dr. Michael R. Harrison the creator of the specialty of fetal surgery and developing techniques of fetoscopy for minimally invasive fetal technology. The Jacobson Innovation Award has been made possible through a gift from Julius H. Jacobson II, MD, FACS, a general vascular surgeon known for his pioneering work in the development of microsurgery.

For press release information, contact Cory Petty at 312-202-5328.

the pathogenesis of Hansen's disease with regard to the peripheral nerve. His book, *Pain, the Gift Nobody Wants*, published in hard cover by Harper in 1993, is a spiritual adventure story, and recommended reading for you all, if you can find a copy. Now consider the *M. leprae* bacteria as the focus, the eye of the storm, attaching to a superficial, cool, peripheral nerve, like the ulnar or common peroneal. In time, when the storm has built up sufficient energy, in this case due to the

host's immune response to the bacteria, the high pressure system, swirling within the epineurium, and within fibro-osseous tunnels (double bonus points), results in chronic nerve compression, abscess formation, and axonal loss. The widespread distal effect of this injury is loss of fingers, amputation, and blindness, secondary to anesthesia. For members of ASRM, perhaps the zone of injury in Hansen's disease will be one of our final frontiers. **RM**

RECONSTRUCTIVE MICROSURGERY / AUTUMN • WINTER 2004

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Taking the Next Steps

Dear Friends,

I trust that your summer was enjoyable and that you have adjusted to the seasonal perturbations of fall. From a president's perspective, the concept of "adjustment" has taken on an incredibly colorful and poignant meaning. As I watched Hurricane Charlie storm over Sanibel Island on its way through Florida's midsection last September, I was gripped by a premonitory feeling that our well-made plans and investments in the upcoming Annual Meeting would be blown away. My worst fears were confirmed by a site visit of the Sanibel Harbour Resort the following week by the ASRM staff. Clearly, a new venue would be required, but where, and at what cost? Fortunately we were able to cancel our contract with the Sanibel Harbour Resort without a penalty. Providence landed us a new contract with the El Conquistador Resort in Puerto Rico. This is a five-star venue with impeccable facilities and accommodations located in a very beautiful setting, on a cliff overlooking the Caribbean Ocean, Palomino Island, and the quaint sailing village of Fajardo. A vivid spectrum of things to see and do awaits the entire family in the beautiful and diverse island of Puerto Rico. In almost every respect, this new meeting site exceeds our previous expectations. We are now proceeding on course to finalize plans for the annual meeting that will be held on the originally set dates, January 15-18, 2005. We are truly indebted to the ASRM staff for its hard work and immediate response to the climactic tumult.

We have also been busy building bridges to both the international microsurgical community and organized plastic surgery. Following the recent changes in our Bylaws, we have seen a tremendous interest for Active Membership in ASRM from the international community. This is a great opportunity for ASRM to broaden its sphere of influence and

PRESIDENT'S LETTER



Robert Walton, MD

*I am pleased to
announce that ASRM
has been given a
seat on the Board of
Directors of the ASPS.*

to embrace the ever dwindling world community of reconstructive microsurgeons. ASRM has recently entered into negotiations with the World Society for Reconstructive Microsurgery to have a joint scientific meeting in 2011. There is obviously much work to be done in sorting out the financial arrangements, meeting location, program content, etc., that will require the cooperation and support of both organizations. Our dialogue with the WSRM leadership suggests that there is a keen interest in going forward with this initiative. We are scheduled to begin formal bilateral discussions for a 2011 ASRM/ WSRM joint meeting beginning this January in Puerto Rico.

Since ASRM represents the single-most focused and influential organization in reconstructive surgery in North America, our mission has taken on new meaning and importance here at home. By increasing our numbers, our ability to advocate

on behalf of our members on matters of third-party reimbursement and outcomes is substantially improved. This is vitally important for the cause of reconstructive microsurgery and for our survival as reconstructive surgeons. In my previous letter to the membership, I outlined an opportunity for ASRM to partner with the American Society of Plastic Surgeons, citing several advantages for such a relationship including an enhanced political and financial clout. Since that time, I have received numerous responses from the members regarding this initiative, the majority of which are very supportive. From our orthopedic surgery members, there are concerns as to how we might manage financial issues, address membership affiliation, and promote ASRM as an independent organization. We have addressed these concerns with the leadership of ASPS and are currently engaged in dialogue. Clearly, a number of critical issues must be resolved before we can go forward in any meaningful way. ASPS is committed to doing whatever is needed to embrace reconstructive surgery/reconstructive microsurgery as a key component of its global mission. I am pleased to announce that ASRM has been given a seat on the Board of Directors of the ASPS. This is a great milestone for ASRM that gives our organization a voice in the scientific program planning, research and advocacy initiatives for reconstructive surgery/reconstructive microsurgery in ASPS. The current ASPS president, Scott Spear, a reconstructive breast surgeon, has assured me that the upcoming year will be an opportunity for ASRM to integrate in a very positive way with ASPS on many levels.

The American Society of Maxillofacial Surgeons, ASMS, currently led by Michael Sadove with Gregory Evans (ASRM member) as President-Elect, has engaged in a formal administrative relationship with ASPS, which is proceeding well. This relationship may well serve as a

model for ASRM and other sub-specialty organizations to partner with ASPS. Our organization is comparatively small and has very little influence on government or insurance entities. By associating with a larger organization, we may have an opportunity to expand our clinical markets, improve research funding, and procure advocacy for reconstructive procedure reimbursement. We must not however, lose our identity as an organization. As a long time active member and in my role as President of ASRM, I am convinced that this relationship, carefully structured, would be very positive for our organization. I seek your thoughts, council and advice as we go forward with this initiative.

Our next step in the maturity and growth of our organization is the development of an ASRM endowment, first proposed by Sal Shenag during his ASRM presidency four years ago. In that interim, we have explored several options for structuring an endowment and have polled the members on their interest and support for such an effort. Over 75% of the member responses have been in favor of an endowment. With the unanimous approval of the Executive Council at its mid-year meeting, I have resurrected the ASRM Endowment Committee for the purposes of establishing the Articles of Incorporation and a Bylaws for an ASRM Endowment. The ASRM Endowment Committee consists of myself (Chair), Joseph Disa, Keith Brandt, and William Zamboni. Our goal is to formally launch the ASRM Endowment in January 2005. We will activate the Endowment when we have reached a principal of \$250,000. Recently, Lee Dellon, Secretary of ASRM, generously donated \$5,000 to seed the Endowment. As President of ASRM, I have also contributed \$5,000. I will be seeking similar contributions from present and past leaders of ASRM and look forward to the membership support as well. It is fitting that we go forward with this effort

9th Annual Day at the Links Golf Tournament



being held in conjunction with
the AAHS and ASRM Annual Meetings

Saturday, January 15, 2005
12:30 pm Departure
Cost: \$165.00 per player

The 9th Annual Day at the Links will be held at the El Conquistador Resort on a beautiful and challenging 18-hole course designed by Arthur Hill playable for all skill levels. Prizes will be awarded to the team with the lowest gross score in addition to the longest drive, longest putt and closest to the pin. Tournament registration will officially close on Friday, January 14, 2005 at 12:00 noon. If you have a person or foursome you prefer to play with, we encourage you to submit a completed foursome to the Registration Desk by Friday, January 14, 2005 at noon. Once your foursome has been submitted it can only be changed at the pro shop. Tickets are non-refundable. Tournament fees include green fees, cart and range balls. Please note the club is a spike less facility and metal spikes are not allowed.

To sign up or for more information, call 312-456-9579.

that will ultimately provide extraordinary benefits and opportunities for our members, including reduced dues and meeting registration fees, research grant awards, and traveling scholarships. If any of you have an interest in contributing to the ASRM Endowment or have suggestions on how the endowment might be structured or focused, I would appreciate hearing from you.

Geoff Robb and his Scientific Program Committee have put together an outstanding program for the Annual Meeting. Having personally read all the abstracts for the meeting submitted from over 20 countries including the US and Canada, I remain impressed by the vitality of reconstructive microsurgery and the innovation that both characterizes

and defines our collective interests. We had sought to host a cadaver dissection workshop at the annual meeting but facility restrictions and medico legal issues thwarted these efforts. Alternatively, Greg Evans has established a Master of Microsurgery Seminar in which invited experts will present their approach to specific flap design, harvest, and inset. This will be offered to all members, fellows, and residents in an interactive format. It promises to be a very instructive program that may well set a benchmark for similar venues in the future.

We look forward to seeing you in Puerto Rico in January 2005.

Sincerely,
Robert L. Walton, MD
President **RM**

2005 PROGRAM-AT-A-GLANCE

20th Annual Meeting of the American Society for Reconstructive Microsurgery

January 15-18, 2005 | El Conquistador Resort & Golden Door Spa | Fajardo, Puerto Rico

AAHS/ASRM/ASPEN Combined Day Program

Saturday, January 15, 2005

- 6:00am-7:30am **Continental Breakfast/Exhibits Open**
- 6:30am-7:30 am **Instructional Courses**
- 201 **Nerve Transfers**
Thomas Tung, MD
Christine Novak, PT/MS
- 202 **RSD**
Keith Bengtson, MD
Jose Monsivais, MD
- 205 **Management of Brachial Plexus Lesions: The State of the Art and a Glimpse of the Future**
Rajiv Midha, MD, MSc, FRCS(C)
Robert Spinner, MD
- 204 **Nerve Compression Injuries of the Upper Extremity**
A. Lee Dellon, MD
Christopher T. Maloney Jr., MD
Ramon A. DeJesus, MD
- 205 **Neurotized Free Flaps**
Allen Bishop, MD
Allen Van Beek, MD
David Chwei-Chin Chaung, MD
- 7:30am-7:40am **Presidents' Welcome**
Richard A. Berger, MD, PhD
AAHS President
- Robert L. Walton, Jr., MD, FACS
ASRM President
- Steven McCabe, MD
ASPEN President
- 7:40am-7:50am **ASPS Presidential Remarks**
Scott L. Spear, MD
- 7:50am-9:00am **Panel: Restoration of Motor Function Following Muscle Loss**
Robert L. Walton, Jr., MD, FACS, Moderator
Milan Stevanovic, MD
William Kuzon, Jr., MD, PhD
Dimitri Anastakis, MD
- 9:05am-9:50am **Presidents' Invited Lecturer**
- 9:50am-10:15am **Break with Exhibitors**

- 10:15am-11:15am **Outstanding Nerve Paper Presentations**
- 12:00pm-4:30pm **Master Series in Microsurgery**
(separate registration required)
- 12:15-12:30pm **Introduction**
Gregory R.D. Evans, MD, FACS
- 12:30-1:00pm **DIEP/SIEF**
Phillip Blondeel, MD
- 1:00-1:15pm **Discussion**
- 1:15-1:45pm **Inferior Gluteal Flap**
Robert Allen, MD
- 1:45-2:00pm **Discussion**
- 2:00-2:30pm **Fibular Flap**
Fu Chan Wei, MD
- 2:30-2:45pm **Discussion**
- 2:45-3:15pm **Triple Island RFF**
Robert L. Walton Jr., MD, FACS
- 3:15-3:30pm **Discussion**
- 3:30-4:00pm **Gracilis Flap**
Milomir Ninkovic, MD
- 4:00-4:15pm **Discussion**
- 4:15-4:30pm **Conclusion**
Gregory R.D. Evans, MD, FACS
- 12:30pm **9th Annual Day at the Links**
- 1:00pm-4:30pm **ASPEN Meeting Resumes**
- 6:30pm-8:30pm **AAHS/ASRM/ASPEN Art Auction & Exhibit Reception**

ASRM Annual Meeting & Scientific Program

Sunday, January 16, 2005

- 7:30am-3:00pm
- Welcome**
Robert L. Walton Jr., MD, FACS, President
Geoffrey L. Robb, MD, FACS, Program Chair
- Panel: Facial Transplantation**
Robert Walton Jr., MD, FACS, Moderator
Peter Butler, MD
Mark Siegler, MD
John H. Barker, MD, PhD

Scientific Paper Presentations

ASRM/ASPN Panel: Neurotized Free Flaps: What's the Data and Which Flaps Work Best

A. Lee Dellon, MD, Moderator
Christopher T. Maloney Jr., MD
Ramon A. DeJesus, MD
Ivan Ducic, MD, PhD

Lunch with Exhibitors

Concurrent Instructional Courses

- 301 **Pediatric Microsurgery**
Ronald M. Zuker, MD, FRCSC
David W. Chang, MD
- 302 **Vascular Loops**
Günter Germann, MD
- 303 **Cervical Esophageal Reconstruction**
Peirong Yu, MD
Greg Reece, MD, BS
- 304 **Update on Obstetrical Brachial Plexus Paralysis Reconstruction**
Julia K. Terzis, MD, PhD
Saleh M. Shenaq, MD
- 305 **Perforator Flaps**
Isao Koshima, MD
Phillip Blondeel, MD

Scientific Paper Presentations

5:30pm–6:30pm **Exhibits Reception**

Monday, January 17, 2005

7:00am–4:00pm

Concurrent Instructional Courses

- 306 **Complex Abdominal Wall Reconstruction**
Charles E. Butler, MD, FACS
David Levi, MD
- 307 **Refinements in Osteocutaneous Flap, Head and Neck Reconstruction**
Howard Langstein, MD
Peter G. Cordeiro, MD
- 308 **Toe to Hand Transfers**
Fu-Chan Wei, MD, FACS
- 309 **Microvascular Breast Reconstruction**
Joseph M. Serletti, MD
Neil A. Fine, MD
Bernie Chang, MD
- 310 **Basic Immunology for Microsurgeons**
Maria Siemionow, MD, PhD, DSc

Panel: Surviving as a Reconstructive Surgeon

Keith Brandt, MD, FACS, Moderator
Steven Pisano, MD
Loren Schechter, MD
Gabriel Kind, MD

Presidential Invited Lecture

Gary C. Burget, MD

"Aesthetic Reconstruction of the Nose and Adjacent Facial Units Using Free Microvascular Flaps"

Founders' Lecture

Isao Koshima, MD

"Supermicrosurgery and Perforator-to-Perforator Flap"

Coffee/Exhibits Break

Scientific Paper Presentations

Lunch with Exhibitors

Concurrent Instructional Courses

- 311 **Complex Trunk Reconstruction**
David W. Chang, MD
Scott D. Oates, MD
David H. Song, MD
- 312 **Facial/Nasal Flap Prefabrication**
Julian J. Pribaz, MD
Robert L. Walton, Jr., MD, FACS
- 313 **Facial Paralysis Reconstruction**
Ronald M. Zuker, MD, FRCSC
Ralph T. Manktelow, MD
- 314 **Lower Extremity Reconstruction**
Maurice Nahabedian, MD
Raymond M. Dunn, MD
- 315 **Free Flap Reconstruction—Choice of Optimal Procedures**
Prof. Milomir Ninkovic, MD
- Scientific Paper Presentations**
- Godina Lecture**
Michael W. Neumeister, MD, FRCSC, FACS
"Microsurgery: From Kingdom to Species"
- 4:00pm **ASRM Business Meeting**
(members only)
- 5:30pm–7:30pm **ASRM Welcome Reception**

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ASRM

Tuesday, January 18, 2005

7:00am–11:15am

Concurrent Instructional Courses

- 316 **Venous Flow Through Flaps**
Rudy Buntic, MD
Darrell Brooks, MD
- 317 **G.U. Reconstruction**
David A. Gilbert, MD
Lawrence B. Colen, MD
Gerald Jordan, MD
- 318 **Treatment of Ischemic Limbs**
William C. Pederson, MD
Wyndell H. Merrill, MD
- 319 **Current Techniques of Midfacial Reconstruction**
Gary C. Burget, MD
- 320 **Optimizing the Aesthetic Outcome of Free Flap Donor Sites**
Elisabeth K. Beahm, MD
Fu-Chan Wei, MD, FACS
L. Scott Levin, MD, FACS
Neil A. Fine, MD, FACS
Robert L. Walton, Jr., MD FACS

Panel: Lower Extremity Reconstructive Outcomes: The Use of the Vac vs Free Tissue Transfer

Günter Germann, MD, PhD, Moderator
L. Scott Levin, MD, FACS
Christopher Attinger, MD
Milomir Ninkovic, MD
Lawrence Colen, MD

Buncke Lecture

G. Ian Taylor, AO, FRACS, FACS, FRCS

"The Anatomical Renaissance"

Panel: Controversies in Breast Reconstruction: The Partial Mastectomy

Elisabeth K. Beahm, MD, Moderator
Neil A. Fine, MD, FACS
Henry Mark Kuerer, MD, PhD
Steven Kronowitz, MD
Aldona J. Spiegel, MD

Godina Lecture

Michael W. Neumeister, MD, FRCS, FACS
"Microsurgery: From Kingdom to Species"

"Marko Godina was distinguished by his tireless energy, his impeccable logic, his boundless optimism, and his constant good humor and courtesy"
—G. Lister

It is these qualities that are sought after in choosing the ASRM Godina Lecturer, honoring Dr. Marko Godina, an unrivaled leader and innovator in reconstructive microsurgery whose life was tragically cut short at the young age of 43. Established by the trustees of the Marko Godina Fund, this distinguished lectureship highlights a young, upcoming microsurgeon who has demonstrated leadership, innovation and ongoing commitment to our field in the best traditions of Dr. Godina.



Michael W. Neumeister, MD

Dr. Michael W. Neumeister, is the 2004 Godina Traveling Fellow. Dr. Neumeister will discuss his inspiration, mentors, experience and enthusiasm for reconstructive microsurgery during his visits to Gent, Bochum, Heidelberg, Munich, Ljubljana, Innsbruck, Boston, Los Angeles, Winnipeg, St. Louis and Taiwan. Dr. Michael W. Neumeister is an Associate Professor at Southern Illinois University School of Medicine in Springfield, Illinois. He is the Director of the Residency Program and serves as the Chief of Microsurgery and Research for the Division of Plastic Surgery and holds

the office of Vice Chair of Research for the Department of Surgery. Outside of the University, Dr. Neumeister holds the office of Vice Chairman of Plastic Surgery at St. John's Hospital and at Memorial Medical Center he holds the office of Director of the Wound Care Team and Assistant Director of the Regional Burn Unit. He obtained his Doctorate of Medicine from the University of Toronto, and later completed his hand and microsurgery fellowship at Southern Illinois University School of Medicine. Dr. Neumeister is an active member of the following National organizations: American Association for Hand Surgery, American Society for Reconstructive Microsurgery, American Society for Plastic Surgeons, Plastic Surgery Educational Foundation, Plastic Surgery Research Council and the Midwestern Association of Plastic Surgeons. **RM**

2005 Annual Meeting

continued from page 1

the day will round out at a reception with the exhibitors that evening.

The Society sincerely appreciates the diligent efforts of our ASRM Council members, the program committee, and the ASRM President, Dr. Robert Walton. This year's program promises to enhance our

enthusiasm for our unique specialty and our mutual interaction as an international membership. So please enjoy your sojourn in Puerto Rico!

Geoffrey L. Robb, MD, FACS
ASRM 2005 Program Chair **RM**

Harry J. Buncke Lectureship

The Harry J. Buncke Lectureship has been created with the support of the California Pacific Medical Center to honor Dr. Buncke's remarkable contributions to the field of microsurgery. Dr. Harry Buncke has played a major role in the development of our specialty and has helped developed several microsurgical laboratories across the globe. He has influenced countless residents and fellows as well as numerous department chairs throughout the world. It is with great appreciation that the ASRM is able to honor Dr. Harry J. Buncke with this lectureship due to the sponsorship from the California Pacific Medical Center.

Each year a candidate will be selected to give the Harry J. Buncke Lecture during the ASRM Annual Meeting. The main criteria for the selection would be candidate's contributions in the field of reconstructive microsurgery. Nominations for candidates will be accepted from the members. The nomination form will be made available on the ASRM web site.

G. Ian Taylor, AO, FRACS, FACS, FRCS "The Anatomical Renaissance"

"Necessity is the mother of invention" which has been fostered for the last 3 decades by microvascular surgery, offering new solutions to reconstructive dilemmas of the past. Fundamental to their success has been a reappraisal of the microneurovascular anatomy of the body.



G. Ian Taylor, MD

It is our pleasure to introduce Dr. G. Ian Taylor as the first Harry Buncke Lecturer, which is scheduled to take place on Tuesday morning, January 18, 2005. Dr. G. Ian Taylor is currently the Senior Consultant Plastic Surgeon as well as Professor of Plastic Surgery for the Department of Surgery at the Royal Melbourne Hospital and at the University of Melbourne. He also serves as the Director of the Jack Brockoff Reconstructive Plastic Surgery Research Unit in the Department of Anatomy & Cell Biology at the University of Melbourne. **RM**

ASRM

FUTURE ANNUAL MEETINGS

2005

JANUARY 15-18, 2005

El Conquistador Resort & Golden Door Spa
Fajardo, Puerto Rico

2006

JANUARY 14-17, 2006

Loews Ventana Canyon Resort
Tucson, AZ

2007

JANUARY 13-16, 2007

Westin Rio Mar Beach Resort
Rio Grande, Puerto Rico

2008

JANUARY 12-15, 2008

Century Plaza Hotel and Spa
Los Angeles, CA

2009

JANUARY 10-13, 2009

Grand Wailea Resort
Maui, HI

ERRATUM NOTICE

In *Reconstructive Microsurgery* 15 (1) Spring/Summer 2004 edition, a misdescription was printed on page 18 under the headline "Microsurgery Pioneer Remembered". The statement "Dr. Chen was one—if not THE—first person to do a successful digital replantation" should read "Dr. Chen is one of the first to do a successful digital replantation." The usage of the word "one" is to be used in the general purpose. Please excuse this erratum.

Navin Singh, MD, FACS

Within head and neck microsurgical reconstruction, use of stereo-lithography in complex post-oncologic and post-traumatic reconstruction can be an immensely useful adjunct. Stereo-lithography evolved as a computer-assisted design/computer-assisted manufacturing (CAD/CAM) principle within heavy industry as a way to create rapid prototypes, and facilitate design of integrated machine parts within specific and narrow tolerances. It was only a matter of time before this was expanded into the medical arena for custom-designed implant fabrication.

Currently "3-D printing" is capable of making plaster, wood, cyanoacrylate, epoxy or wax models that are highly accurate, but alas not suitable for permanent implantation. The polymers that are extruded and layered to create 3D models are currently not implantable into the human body, but are still reliable to use on the surgical field for guidance and creating implants as well as understanding anatomy and identifying a surgical path into remote regions within the craniofacial skeleton. They can meet high-strength requirements, recapitulate even delicate or thin-walled parts such as the



Pre-Op

Use of Stereolithography in Head and Neck Reconstruction

maxillary sinus, and provide detail <1 millimeter in resolution. Colors can be used to highlight areas to avoid such as the internal carotid in a radiated neck, or targets to seek such as tumor. With the newer machines, detailed models can be created in a matter of hours.

We have used stereo lithography to assist and enhance our precision in head and neck reconstruction, as well as for technique rehearsal.

Case:

A 35 year old soldier was involved in a military maneuver during which he stepped on a "Bouncing Betty" land-mine. As it exploded, it created significant shrapnel resulting in an open craniectomy defect in his left temporo-parietal skull and avulsion of his left orbit and hemi-maxilla, which was treated in a field hospital with stabilizing skin grafts in his native country.



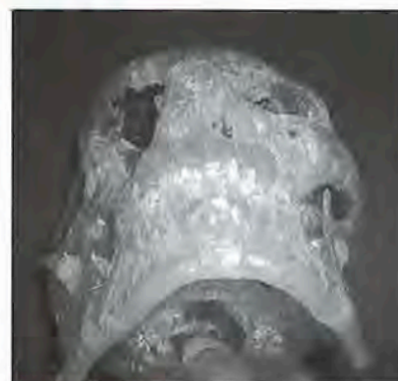
Pre-Op CT

A 3-D CT dataset was generated and a DICOM data-push was sent over the internet through a secure line to the Department of Defense computers at Bethesda Naval. Using segmentation, a 3-D set of images was created and transmitted to the stereo lithography machine, generating a true replica scale model of his skull demonstrating the zygomatic defect of his left maxillary region. In addition, the dataset was inverted and a mirror image of his skull was also generated.

Using the mirror image of his skull, an exact template was created to reconstruct the patient's maxillary eminence using a free fibula. Precise osteotomies were planned and performed *in situ* during harvest, and stabilized with lag screws to provide a low contour profile implant that would not interfere with future



Original Skull



Mirror Skull

osseo-integrated implant placement. The free fibula was positioned and rigidly plated to the naso-maxillary buttress as well as to the temporal bone. Vascular anastomoses were fashioned to branches of the external carotid and internal jugular.

This reconstruction has provided a rigid stable platform that recapitulated an orbital socket, after which he was a candidate for prosthetic rehabilitation. He has returned to his native country and further follow-up pictures are not available.



Post-Op

Discussion:

Utilizing this case as an exemplar, the role of stereo lithography in craniofacial reconstruction is only beginning to be explored. Whenever extirpation and immediate reconstruction is planned of osseous parts, this technology can be utilized to create faithful templates of hemi-mandibles, maxillae, nasal pyramids, and orbits. Although, the model itself is not suitable for implantation, it can be sterilized and utilized on-field for exact and sub-millimetric accuracy in reconstruction, without having to manipulate a tumor laden area and thus avoiding the risk dissemination and metastasis.

In the trauma setting where missing and avulsed parts are not available, mirror image recreations can be utilized to achieve reconstructions more precisely than we currently are able to perform. Rapid prototypes can provide us with guides for maxillary-mandibular fixations "virtual surgery" and "virtual osteotomies" in planning for an operative intervention. This would certainly be applicable both as a surgical planning tool and an educational tool in orthognathic surgery. In addition, faced with 80-hour work-week limitations for residents, once rapid prototyping and medical modeling becomes more cost effective, this can be an invaluable planning and educational tool

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Tip #47

Avoiding the False Negative

Monitoring cutaneous free flaps in African-American skin poses a challenge because capillary refill and "pink" color is hard to assess. Venous congestion is notoriously hard to see. If an implantable venous Doppler flow probe is not available, look for "striae distensae". For example, when a free DIEP, TRAM, or SIEP flap is used for breast reconstruction, the stretch marks in the abdominal flap are very sensitive for venous congestion. When they become raised, instead of flat or atrophic, this can indicate early venous congestion, even before any detectable color change in the flap. Evaluation of the striae is helpful in fair-skinned patients as well, but invaluable in darker pigmented African-American skin.

Tip #48

Avoiding the False Positive

When fasciocutaneous perforator flaps are harvested from the thigh (such as the ALT perforator flap) for head & neck reconstruction, the color mismatch is quite noticeable. The ruddier sun exposed head & neck skin makes even a well perfused thigh flap (harvested from a clothed and sheltered area) look pale and arterially insufficient. We ask our nurses to monitor the fine telangiectasias or "spider-veins", when present, in the thigh flap. The telangiectasias are very sensitive and specific to arterial perfusion—presence of blanchable "spider-veins" can reassure that a comparatively pale appearing flap is indeed well perfused, preventing the false alarm of arterial compromise.

Tip #49

Pre-Op Preparations

When performing a free flap reconstruction at the end of an extirpation by another surgical team, make sure that you are part of the positioning and draping of the patient at the beginning of the operation. Otherwise, you will often find yourself trying to deal with positioning the microscope, re-draping the patient, or moving the table away from anesthesia at the beginning of your portion of the case, typically later in the day. Inefficient use of time will fatigue the team and delay your team's departure time, which in this age of 80-hr work week limitations would be detrimental to resident education. A few invested minutes at the beginning of the day pay back in saved hours at the end.

Tip #50

Turning the OR Table

Most OR tables have the bulky mechanism for adjusting the bed position under the head of the patient. For head and neck reconstruction, we typically place the patient's head at the foot of the bed, so that the patient is at 180 degrees relative to the bed—allowing greater leg-room for the surgeon. This becomes important during the microanastomoses, permitting both surgeon and assistant to be comfortably seated without their legs bumping against the cumbersome mechanism under the OR table. As with the tip above, it would be important to communicate with the anesthesiologist and extirpative surgeon about the positioning at the beginning of the case. **RM**

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for reconstruction coupled with microsurgical techniques.

At present, cost is prohibitive for wide use of medical modeling; however, as industry adopts this standard for machining, design, and rapid prototyping, they will drive down the costs thus making it more affordable in the general medical arena. At the present time, a few research centers own rapid modeling machines and have secured these through research grant money. Once the machine is present, it's upkeep and incremental use is indeed extremely cost effective, vis-vis cost savings from decreased intra-operative time, savings from preventing waste of medical implants, and savings from avoidance of revisional surgery.

Free flaps that are suitable for use in combination with stereo lithography include all osseous flaps such as the DCIA flap, fibula, scapula, radial forearm flap with bone, and lat-serratus with rib. Additionally, all manner of thin, perfora-

tor-based fasciocutaneous free flaps for head and neck coverage can benefit from modeling to not only look at the bony skeleton, but soft tissue thickness (e.g. nasal reconstruction).

The technique is in its infancy and has a role in planning, education, and generating microsurgical reconstructions with greater precision and accuracy. **RM**

REFERENCES

Chang PS, Parker TH, Patrick CW Jr, Miller MJ. The accuracy of stereolithography in planning craniofacial bone replacement. *J Craniofac Surg.* 2003 Mar;14(2):164-70.

Powers DB, Edgin WA, Tabatchnick L. Stereolithography: a historical review and indications for use in the management of trauma. *J Craniomaxillofac Trauma.* 1998 Fall;4(3):16-25.

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