THE AMERICAN SOCIETY FOR RECONSTRUCTIVE MICROSURGERY

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RECONSTRUCTIVE MICROSURGERY

MESSAGE FROM THE PROGRAM CHAIR

2001 Microsurgery Meeting

As the summer draws to a close, I am happy to report that the preparations for the 16th ASRM Annual Meeting are almost complete. The meeting will be held in sunny southern California at Loews Coronado Bay Resort in San Diego between January 13-16, 2001. This will be an historic meeting because, for the first time, the ASRM will be joined by both the American Association for Hand Surgery (AAHS) and the American Society for Peripheral Nerve (ASPN). We have received a record number of outstanding abstracts. Of the 180 submitted, the program committee has selected 113 for presentation. The papers cover the many innovations within the broad spectrum of our specialty and come from all over the world. Thus, we are looking forward to welcoming many overseas guests to our meeting. We have been able to accept more papers this year because we plan to have concurrent paper sessions on two days and we have also introduced a new category of three minute "bullet" type presentations.

In response to requests from the membership, we have also increased the number of panels that will be presented at the meeting and the topics have been chosen to reflect current concerns and innovations in reconstructive microsurgery.

On Saturday, January 13, we will be having a joint day with the ASPN and AAHS which will commence with instructional courses followed by the first panel, which will deal with functional free flap transfer for extremity reconstruction. Dr. Michael Woods will deliver the President's Lecture and this will be followed by free papers which will deal mainly with nerve research and reconstruction as these are of interest to all three societies.

On Sunday, January 14, the ASRM will have a combined meeting with the ASPN beginning with a panel which will discuss limb salvage - the interface between new techniques and free tissue transfer. This will be followed by a hand and nerve free paper session. Dr. Sal Shenaq, our President, will then present his Presidential Address. There will be one further panel dealing with reflex sympathetic dystrophy to round off this day. On Sunday afternoon, Dr. Jeffrey Friedman has organized the Residents and Fellows symposium which will also be open to other interested attendees if they apply.

On Monday, January 15, the day will begin with six instructional courses followed by a panel dealing with gene therapy research and applications to reconstructive microsurgery. Dr. Roger Khouri will then deliver the Godina Lecture. After this, there will be concurrent paper sessions, with head and neck occurring concurrently with research presentations. A further panel dealing with surgical engineered and customized free flap transfers will follow the paper session. Dr. Wayne Morrison, from Australia, will then present the Founder's Lecture. The Business Meeting will follow his presentation.

On Tuesday, January 16, instructional courses will again start the day followed by a panel dealing with perforator flaps. This will then be followed by concurrent paper sessions

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ANNUAL MEETING 2001

Taking Advantage of Membership

You will find all the details about the upcoming annual meeting in San Diego in January 2001 in this newsletter, but this will be a seminal event for the American Society for Reconstructive Microsurgery. For the past several years after separating its meeting from the American Society for Surgery of the Hand, the American Society for Reconstructive Microsurgery has held its annual meeting at the same time and in the same place as the American Association for Hand Surgery. The overlap day between the two meetings has consisted of instructional courses, panels and papers relevant to both societies. The upcoming meeting in San Diego promises to go one step further and marks the first time that three national societies: ASRM, AAHS and the American Society for Peripheral Nerve have consolidated their meetings to include concurrent sessions.

Another seminal event in microsurgery will take place in 2001—the inaugural meeting of the World Society of Microsurgery to be held in Taipei, Taiwan under the chairmanship of Fu Chan Wei, MD. The World Society of Microsurgery was formed in Los Angeles in June 1999 by the amalgamation of two previous international microsurgical societies, the International Society for Reconstructive Microsurgery and the International Microsurgery Society. Surgeons from Taiwan have been at the forefront of the evolution in microsurgical reconstruction over the past twenty years and having personally visited Dr. Wei's unit in 1993, I am confident that this first world conference will be an outstanding success. I would encourage all our ASRM members to consider traveling to the Far East in October to participate in this event.

The other function of the Secretary and Editor of *Reconstructive Microsurgery* is to persuade, cajole and sometimes even to plead with members to participate or avail themselves of some of the opportunities that are

EDITOR'S MESSAGE

Neil Ford Jones, MD

[Another] function of the secretary and editor of RM is to persuade, cajole and sometimes even to plead with members to participate....

available to them as members. This is my last opportunity to do so before the end of my term in office. Firstly, at our recent mid-summer Council meeting, each council member agreed to input information from their microsurgical cases into the Clinical Outcomes data base (TRIM) developed by Carolyn Kerrigan, MD. I would also encourage all of our members to try and input their own microsurgical cases into this database on the ASRM web site, so that hopefully we can collect as much information as possible and provide meaningful conclusions about the effectiveness of our microsurgical reconstructions and thereby convince the insurance carriers of the advantages of microsurgery.

Secondly, in the last newsletter, I tried to persuade everyone to submit tips and pearls of wisdom regarding their microsurgical techniques. Initially this produced a flurry of submissions but I hope that you will continue to submit your microsurgical practice tips to Geoff Robb, MD, Chairman of the Education Committee.

Finally, I think all of us in North America are interested in learning about the history and development of microsurgery in other parts of the world and this has been the focus for the column entitled "Microsurgery Overseas" in each edition of the newsletter. In this issue, you will be able to read about microsurgery in Australia (from one of the pioneering units there). I would encourage any foreign surgeons, especially in countries in Europe, South America and Africa to consider submitting an article describing the development, organization and training programs in microsurgery in their particular country. **RM**

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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What's Ahead for the ASRM

Dear Fellow Members,

As the year advances, our Society's progress continues. The 16th annual meeting is planned to be diverse, comprehensive, and interactive. For the first time, the American Society for Peripheral Nerve will join the ASRM and AAHS, and the scientific program promises to be a stimulating and memorable one. I strongly encourage our new talent and our young members to take advantage of this opportunity to participate in the scientific and committee aspects of the Society.

Chaired by Dr. Julian Pribaz, this year's excellent program will emphasize interactive panels covering peripheral nerve, hand, and microsurgery. Presentations and panels by members of the AAHS, ASRM, and ASPN will open the way for our members to enjoy international interactions and gain knowledge and expertise which will lead us into the 21st century.

To keep you abreast, the Council held its mid-year meeting this July and every member is excited about the growth and the prospects of our vibrant society. Dr. Sherman reviewed the final details of the Godina Traveling Fellowship. The fellow will be appointed at the outgoing council meeting, and appointment criteria includes being younger than 44 at the time of the appointment. The Society is working with Thieme to provide the *Journal of Reconstructive Surgery* as a member benefit. Dr. Walton is working with the financial management company to raise their level of service to the expectations of the Society. The many ASRM Committees have been diligently working on their tasks, some highlights of which include adding a member-only link to the *Journal of Reconstructive Microsurgery* on the ASRM web site, focusing on the TRIM database for entering microsurgical cases, and investigating means to form an endowment.

PRESIDENT'S LETTER

Saleh M. Shenaq, MD

The beautiful sunny location of the Coronado Bay Resort in San Diego will be a pleasurable one for our members and families, with plenty of social events to be enjoyed by all. I look forward to seeing you there in January. RM

Invitation for Suggestions to the Nominating Committee

Nominating Committee Chairman Daniel Nagle, MD is requesting recommendations for nominations for the ASRM officer positions for 2001-2002. ASRM members are encouraged to forward names for consideration for the following positions:

President-Elect
Vice President
Secretary
Council Member At Large
(1 position open)

Please send a letter or fax to:

American Society for
Reconstructive Microsurgery
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ASRM Microsurgery Calendar

November 3–7, 2000
ASPS/PSEF Annual Meeting
Orlando, FL

January 10–13, 2001
AAHS Annual Meeting
Loews Cornado Island
Cornado, CA

January 13–16, 2001
ASRM 16th Annual Meeting
Loews Cornado Island
Cornado, CA

January 13–14, 2001
ASPN Annual Meeting
Loews Cornado Island
Cornado, CA

February 28–March 4, 2001
American Academy of Orthopaedic Surgeons
San Francisco, CA

October 31–November 3, 2001
World Society of Microsurgery
Taipei, Taiwan

FUTURE ASRM ANNUAL MEETINGS

January 12–13, 2002
Westin Caeser Park
Cancun, Mexico

January, 2003
Hyatt Regency, Kauai
Kauai, Hawaii

ASRM 16TH ANNUAL MEETING

JANUARY 13-16, 2001
LOEWS CORONADO BAY RESORT
SAN DIEGO, CA

PROGRAM-AT-A-GLANCE

AAHS 31st Annual Meeting

Wednesday, January 10, 2001

6:30 am - 5:00 pm	Speaker Ready Room
7:00 am–8:00 am	Hand Therapy Pre-Conference Registration and Coffee
8:00 am–5:30 pm	Hand Therapy Pre-Conference Seminar
1:00 pm–5:00 pm	AAHS Board Meeting
1:00 pm–5:00 pm	Poster Set Up
12:00 pm- 1:20 pm	Hand Therapy Lunch
12:00 pm–5:00 pm	AAHS Annual Meeting Registration

Thursday, January 11, 2001

6:30 am–5:00 pm	Speaker Ready Room
6:30 am–4:30 pm	AAHS Registration
6:30 am–7:00 am	Coffee
7:00 am–5:00 pm	Posters Open
7:00 am–7:03 am	President's Welcome *William Blair, MD*
7:04 am–7:07 am	ASSH President *Peter Stern, MD*
7:08 am–7:10 am	Program Chair's Welcome *Mark Baratz, MD*
7:10 am–7:30 am	Report from the 2000 Vargas Award Winner
7:30 am–8:38 am	Scientific Paper Session A
8:38 am–8:53 am	Coffee Break
8:53 am–10:30 am	Concurrent Scientific Paper Session B-1
8:53 am–10:30 am	Concurrent Scientific Paper Session B-2
10:30 am–11:30 am	Panel I: *Simple Fractures That Aren't*
11:30 am–12:00 pm	Presidential Invited Lecture *Joseph Buckwalter, MD*
12:00 pm–1:00 pm	Lunch Break
1:00 pm–2:45 pm	Scientific Paper Session C
3:00 pm–4:00 pm	Panel II: *Flexor Tendon Injuries*
4:00 pm–5:00 pm	Instructional Courses 101–106
7:00 pm–9:00 pm	AAHS Welcome Reception

Friday, January 12, 2001

6:30 am–5:00 pm	Speaker Ready Room
6:30 am–12:00 pm	AAHS Registration
6:30 am–7:00 am	Coffee
7:00 am–5:00 pm	Posters Open
7:00 am–7:45 am	Instructional Courses 107–112
8:00 am–9:04 am	Scientific Paper Session D
8:30 am–2:00 pm	Exhibits Hall Open
9:04 am–9:39 am	Coffee/Exhibits Break
9:39 am–11:08 am	Concurrent Scientific Paper Session E-1
9:39 am–11:08 am	Concurrent Scientific Paper Session E-2
11:15 am–12:15 pm	Panel III: *The Cut Nerve*
12:15 pm–1:15 pm	Awards Luncheon/Presidential Address
1:15 pm–1:45 pm	AAHS Business Meeting
1:15 pm–6:15 pm	Resident Papers/Panel/Finger Bowl
1:45 pm–2:45 pm	AAHS Board Meeting
2:45 pm–6:15 pm	ASRM Council Meeting
5:00 pm–9:00 pm	ASPN Poster Set Up
6:30 pm–9:30 pm	ASPN Council Meeting

AAHS/ASPN/ASRM Joint Day Program

Saturday, January 13, 2001

6:30 am–5:00 pm	Speaker Ready Room
6:30 am–7:00 am	Coffee
6:30 am–4:30 pm	AAHS/ASRM/ASPN Registration
7:00 am–8:00 am	Instructional Courses 201–204
7:00 am–5:00 pm	Posters Open
8:05 am–8:15 am	Presidents' Welcome *William Blair, MD, AAHS President* *Saleh Shenaq, MD, ASRM President* *David T.W. Chiu, MD, ASPN President*
8:15 am–9:15 am	Panel I: *Functional Free Tissue Transfers for Extremity Reconstruction*
9:00 am–2:00 pm	Exhibit Hall Open
9:15 am–9:45 am	Presidents' Lecturer *Michael Wood, MD*
9:45 am–10:30 am	Coffee/Exhibits Break
10:30 am–11:30 am	Joint Outstanding Nerve Paper Presentations

11:30 am	AAHS and ASRM Adjourn
11:30 am–12:30 pm	ASPN Breaks
11:30 am	Golf Tournament–Hotel Departure
12:00 pm–5:00 pm	AAHS Poster Tear Down ASRM Poster Set Up
1:00 pm–5:00 pm	ASPN Scientific Session
1:00 pm–2:00 pm	Guest Speaker *Richard Ambron, PhD* *Professor*
2:00 pm–3:30 pm	Scientific Session E
3:30 pm–4:00 pm	Coffee Break
4:00 pm–5:00 pm	Guest Speaker: *Wesley Thompson* *Professor*
6:30 pm–8:30 pm	AAHS/ASRM/ASPN Reception

ASPN Annual Meeting

Sunday January 14, 2001

6:30 am–2:00 pm	ASPN Registration
6:30 am–7:00 am	Coffee
7:00 am–8:00 am	Instructional Courses 401-403
7:00 am–6:00 pm	Posters Open
8:00 am–8:15 am	Welcome *David T.W. Chiu, MD, President* *Rajiv Midha, MD, Chair*
8:15 am–9:00 am	Guest Speaker *Tessa Gordon, PhD* *Professor*
9:00 am–10:30 am	Scientific Session F
9:00 am–2:00 pm	Exhibit Hall Open
10:30 am–11:15 am	Coffee Break/Exhibits
11:15 am–12:30 pm	Scientific Session G
12:30 pm–1:15 pm	ASRM/ASPN Nerve Panel: *Reflex Sympathetic Dystrophy*
1:15 pm–2:15 pm	Poster Exhibit Lunch
2:15 pm–3:45 pm	Symposium: *Conduits for Nerve Repair*
3:45 pm–5:15 pm	Scientific Session H
5:15 pm–6:00 pm	ASPN Business Meeting
6:00 pm–8:00 pm	ASPN Poster Teardown

ASRM 16th Annual Meeting

Sunday January 14, 2001

6:30 am–5:00 pm	Speaker Ready Room
6:30 am–7:00 am	Coffee
6:30 am–2:00 pm	ASRM Registration
7:00 am–6:00 pm	Posters Open
7:00 am–7:08 am	President's Welcome *Saleh Shenaq, MD*
7:08 am–7:15 am	Program Chair's Welcome *Julian Pribaz, MD*
7:15 am–8:00 am	Panel I: *Limb Salvage Interface Between New Techniques and Free Tissue Transfer*
8:00 am–10:00 am	Scientific Paper Session A
9:00 am–2:00 pm	Exhibit Hall Open
10:00 am–10:45 am	Refreshment Break/Exhibits
10:45 am–12:00 pm	Scientific Paper Session B
12:00 pm–12:30 pm	Presidential Address *Saleh Shenaq, MD*
12:30 pm–1:15 pm	ASRM/ASPN Nerve Panel: *Reflex Sympathetic Dystrophy*
1:15 pm–5:45 pm	Resident/Fellows Symposium

Monday January 15, 2001

6:30 am–5:00 pm	Speaker Ready Room
6:30 am–2:30 pm	ASRM Registration
6:30 am–7:00 am	Coffee
7:00 am–8:00 am	Instructional Courses 301–306
7:00 am–1:00 pm	Posters Open
8:00 am–8:45 am	Panel II: *Gene Therapy and Tissue Engineering for the 21st Century*
8:30 am–2:00 pm	Exhibits
8:45 am–9:30 am	Godina Lecture
9:30 am–10:15 am	Refreshment Break/Exhibits
10:15 am–12:15 pm	Concurrent Scientific Paper Session C-1
10:15 am–12:15 pm	Concurrent Scientific Paper Session C-2
12:15 pm–1:00 pm	Panel III: *Surgical Engineered and Customized Free Flap Transfer*
1:00 pm–1:30 pm	Founders' Lecture
1:00 pm–5:00 pm	Audio Visual Theater
1:30 pm–2:15 pm	ASRM Business Meeting
6:00 pm–7:30 pm	ASRM Cocktail Reception

Tuesday, January 16, 2001

6:30 am–7:00 am	Coffee
6:30 am–12:00 pm	ASRM Registration
7:00 am–8:00 am	Instructional Courses 307–312
7:00 am–12:30 pm	Posters Open
8:00 am–8:45 am	Panel IV: *Perforator Flaps*
8:00 am–12:30 pm	Audio Visual Theater
8:45 am–10:36 am	Concurrent Scientific Session D-1
10:37 am–11:05 am	Refreshment Break
11:06 am–12:30 pm	Continuation of Concurrent Scientific Session D-1
8:45 am–10:45 am	Concurrent Scientific Session D-2
10:45 am–11:05 am	Refreshment Break
11:06 am–12:50 pm	Poster/Paper Presentations
12:30 pm–2:30 pm	ASRM Poster Teardown
12:50 pm	Adjourn
1:00 pm–3:30 pm	ASRM Council Meeting

Eighth Annual Godina Lecture

"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 (age 43 or under) who has demonstrated leadership, innovation and ongoing commitment to our field in the best traditions of Dr. Godina.

Roger Khouri, MD, has been chosen as the 2001 recipient of this most honored presentation. Dr. Khouri received his Medical Degree at the American University of Beirut, Beirut, Lebanon and is board certified by the American Board of Plastic Surgery as well as his Certificate of Added Qualification in Hand Surgery. He is currently practicing in Florida and is active in several national and international societies. Dr. Khouri is a founding member of the American Society for Peripheral Nerve, Cell Transplant Society, a Founding Board Member of the International Society for Tissue Engineering and has served on the Council of the American Society for Reconstructive Microsurgery from 1995-1996.

Dr. Khouri has been an active member in the American Society for Reconstructive Microsurgery. He has been in attendance at all 15 annual meetings of the Society as well as served as the Program Director for the 10th Annual Meeting. He has authored or co-authored 25 scientific papers over the past 14 meetings and currently serves on the Editorial Board of *Microsurgery, Plastic and Reconstructive Surgery*, the official journal of the Society.

From 1992-1997, Dr. Khouri was a research consultant for a number of companies and has been the principal investigator on several grant supported projects. He has contributed to the field by publishing over 100 scientific papers on the subject of microsurgery, thrombosis, tissue engineering, flaps and flap prefabrication, and outcome assessment. Roger Khouri shows leadership and innovation through his research and his ongoing commitment to reconstructive microsurgery by his active participation in several societies. Dr. Khouri's clinical practice is almost exclusively dedicated to reconstructive surgery and extremity surgery. After 12 years of practice and more than 600 microvascular free flaps, he is still down in the trenches, still pushing the frontiers. **RM**

5th Annual Day at the Links Golf Tournament

being held in conjunction with the AAHS, ASRM and ASPN Annual Meetings

Saturday, January 13, 2001
11:30 am Depart Hotel
12:30 pm Shotgun Start
Price: $150.00

The shotgun start scramble will be held at Steele Canyon Golf Club. Awarded the prestigious Four Star rating by the readers of Golf Digest, Steele Canyon offers private club playing conditions in a naturally beautiful setting. Designed by Gary Player, the course features panoramic views from several tees, beautifully sculpted fairways and smooth, true greens. Tournament fees include greens fee, cart rental, transportation, box lunch and two drink tickets. Please note the Club is a spikeless facility—no metal spikes are allowed. Proper golf attire (collared shirts, slacks or Bermuda length shorts of non-denim material) is required.

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

Annual Meeting

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with the lower extremity papers being presented concurrently with head and neck and breast presentations. The three minute "bullet" presentations will follow the breast papers.

We have tried to pack a lot of scientific material into these four days and have organized things to occur mostly in the morning. This will leave the afternoons free to enjoy the good food and good times to be had in sunny California, in preparation for further festivities and camaraderie with the social events at night.

Thus, I urge all members, residents and fellows, and other surgeons interested in microsurgery to mark their calendars and plan to attend this historic meeting, the first for the new millennium, which really begins in the year 2001. **RM**

Julian Pribaz, MD
Scientific Program Chair

Microsurgery in Australia

Wayne A. Morrison
Professor of Surgery

Microsurgery in Australia has gained a high profile since the first published free flap in Melbourne in 1973. It quickly became a standard component of all training programs in Plastic Surgery and every graduate in Plastic Surgery has exposure to and skills in microsurgery. For this reason, courses in microsurgery are uncommon; rather fellowships or rotations in units which have a large volume of microsurgery are preferred so that experience is gained in a clinical environment. Indications, operative technique, interpretation of flap viability, post operative care, and long term outcomes are studied.

Research in microsurgery in Australia has centered on basic technique, anatomy and skin blood supply, prefabrication and tissue engineering. More and more research is collaborative with major research institutes and include genetics and stem cell technology.

Overseas fellowships in microsurgery research have long been a tradition, particularly in Melbourne at St. Vincent's Hospital (Bernard O'Brien Institute of Microsurgery) and the Royal Melbourne Hospital. Funding for these positions is increasingly difficult, but unlike many overseas countries, trainee registration, which is restricted to the employing hospital, is not difficult. Post graduate research degrees, Masters, and PhD's are now commonly sought by local Australian graduates as well as British and Canadians who have similar training systems.

Many major public hospitals in each state share combined consultative clinics in Head and Neck, Breast, Surgical Oncology and Orthopaedics. Pediatric microsurgery is also well developed especially for upper limb reconstruction, including brachial plexus. Adult brachial plexus surgery by contrast has been relatively poorly embraced in Australia.

Plastic surgeons still dominate the practice of microsurgery and this seems to be one of the few fields in our specialty that has not been seriously challenged by other disciplines.

...the government is collaborating with private insurance firms in introducing a form of American style managed care.

Government intrusion into medicine is continuous. Our system known as Medicare is a universal health scheme two-thirds funded by general taxes and one-third by a special Medicare Levy. The standard of care in public hospitals is generally very high and of uniform standard, but with long waiting lists, especially for non urgent plastic surgery. Approximately a third of Australians have private insurance and are treated in private hospitals commonly linked to public hospitals. Private Health funds are almost insolvent and to prevent their collapse, which would result in an increased burden on the public system, the government is collaborating with private insurance firms in introducing a form of American style managed care. This seems imminent and may impact on microsurgery as it has in the United States where carriers refuse to adequately reimburse such procedures.

Currently, however, there is no restriction by bureaucracy on clinical decision making. **RM**

Dr. Wayne Morrison is currently Professor of Surgery at St. Vincent's Hospital Melbourne, University of Melbourne and director of Bernard O'Brien Institute, Melbourne, Australia.

ASRM Internet Applications Committee

Keith Brandt, MD, FACS

The combined ASRM/AAHS/ASPN annual meetings utilized a complete on-line abstract submission process for the 2001 Annual Meeting. The American Society for Reconstructive Microsurgery received 180 abstract submissions up 61% from last year. One hundred and thirteen abstracts were accepted for presentation.

Having the entire abstract submission process on-line facilitates several aspects of the annual meeting educational program. The on-line abstract process simplifies abstract submission for our international members and guests by eliminating the need to submit abstracts on photo ready "blue line" sheets. The time from abstract submission to author notification has been shortened by performing abstract rating on-line and author notification via e-mail. Since the original abstract submission is digitized the abstracts can be easily formatted and downloaded for printing in the annual meeting brochure. Plans are also underway to include the presented abstracts in the secured section of the website after the meeting.

Look to the website www.microsurg.org for the latest up-to-date information about the annual meeting. The website also contains meeting and hotel registration forms if you lose yours or if you need an extra copy for another guest. **RM**

MICROSURGICAL PEARLS

Real Solutions for Real Situations

TIP #16

Definitive Sterile Draping of Flank and Chest for Adjuvant Liposuction

Adjuvant liposuction of the lateral aspect of TRAM flap and breast reduction wounds is useful to improve contour and minimize dog-ears. These incisions often extend laterally to near the operative table, particularly in obese patients. Inadvertent passage of the liposuction canula between the patient and drape can result in a break in sterile technique. To circumvent this problem, the patient is prepped toward the posterior midline while tilted laterally then surgical drapes, folded over gloved hands, are tucked between the patient and the table. A second drape is secured directly to the patient with surgical clips. This technique allows the sterile field to extend to the patient-table junction. The table itself, lateral to the patient, remains sterile so that inadvertent passage of the liposuction canula between the patient and superficial drape will not extend far laterally, regardless of the use of adjunct liposuction.

– Charles E. Butler, MD

TIP #17

Esmark Template of Complex Head & Neck Reconstruction Defects

A custom designed Esmark template of complex three-dimensional resection defects can be used to precisely design the donor flap skin paddle. This allows for an accurate shape and size and minimizes harvest of redundant donor tissue. An Esmark template is carefully trimmed and tailored to exactly match the skin defect while it is sutured into place. Moist sponges are placed in alimentary and respiratory cavities to maintain their native shape and volume. When designing the template, one must account for the anticipated thickness of the flap tissue. The "skin" side of the template is labeled as such and the borders of the template are labeled with their corresponding anatomic site. The optimal position for the pedicle entry is also indicated. Any specific areas that require alterations in flap thickness can be marked to allow contouring while the flap is being perfused, *in situ*. The template is removed, sterilized in betadine and transposed to the donor site to outline the flap design. This technique has been extremely useful in complex defects and has minimized the amount of trimmed and discarded flap tissue. In addition, it can reduce ischemia time by limiting the amount of flap trimming prior to revascularization. It is particularly helpful in determining the optimal pedicle entry position in relationship to the skin paddle. On several occasions this technique has significantly altered my anticipated flap design.

– Charles E. Butler, MD

TIP #18

Muscular Coverage of Exposed FCR Tendon in Radial Forearm Flap Donor Sites

FCR exposure is not an uncommon problem following radial forearm flap harvest and skin grafting. Despite stable skin graft coverage over this tendon, subsequent breakdown can occur. To limit this occurrence, the muscle bellies of the FDS and FPL can be transposed over the FCR tendon to improve skin graft take and limit tendon exposure. The FDS is gently separated from the underlying median nerve to prevent traction on the nerve. The muscle is partially detached from the radius to increase the mobility, then transposed over the FCR and sutured to the FPL muscle with resorbable sutures. Care should be taken not to extend this suture line to the tendinous portions of FDS and FPL. The use of this technique has significantly improved the healing of radial forearm flap donor sites without limitation of hand function.

TIP #19

Prevention from Pedicle Traction Injury During *In Situ* Osteotomies and Bone Plating of Free Fibula Flaps

The performance of *in situ* osteotomies and bone plating for mandibular reconstruction with free fibula flaps can cause traction and injury to the peroneal pedicle. This problem occurs largely when the proximal end of the fibula flap becomes pressed against the leg and the manipulation required for *in situ* osteotomies causes torque on the pedicle. If the entire length of fibula flap is not required for reconstruction, the proximal segment (4-8 cm) of bone flap is removed. A #1 prolene suture, placed through a drill hole in the cephalic end of the bone flap, is used to secure the flap to the proximal wound edge. The suture ends are not tied, but approximated with a hemostat to create an adjustable loop with enough mobility to perform osteotomies and plating but prevent traction on the pedicle. This technique takes minimal time and facilitates osteotomies and plating without constant concern of pedicle stretch or avulsion injury.

– Charles E. Butler, MD

TIP #20

- In dissecting the pedicle, I find it very useful to first place the vessel loops around the pedicle to provide a gentle retraction for exposure to facilitate the dissection.
- Microsurgery instruments should be held lightly with the fingertips to minimize forearm muscle contribution (which can lead to tremor), and to maximize control.
- In doing anastomosis, I prefer to start from the back wall and work anteriorly, making sure the lumen is always visualized during placement of each stitch to prevent

damage to the back wall. With this technique, double approximating clamps are rarely needed.

- When there is a significant vessel mismatch, I prefer the use of the triangular technique. Three sutures are first placed 120 degrees apart and tails are left long. Then, interrupted sutures are placed between each of these sutures using long tails as retractions. I find that with this technique, sutures can be placed fairly evenly, even when there is a large vessel mismatch (e.g. 2:1).
- When placing the last one or two sutures and the lumen is not well visualized, fill the lumen with heparinized saline to "blow-up" the vessel thus allowing the placement of the sutures without catching the back wall.
- If you want to be a "fast" microsurgeon, move slowly and deliberately—DO NOT RUSH, to minimize making mistakes.
- Do not pull up on the vessel, but work within the plane of the vessel. Working under high magnification causes loss of focus and can also damage the vessel.
- Always pull the needles out using the curve of the needle. Pulling the needle out straight causes the needle holes to become larger.
- I generally do not advocate "over-dissection" of the vessel. Dissect just enough so that anastomosis can be done safely without adventitia getting into the lumen or the suture line. "Over-dissection" can lead to a damaged vessel and further spasm. In this case, "less is more."
- I generally discourage placing any instrument, (especially sharp jeweler's forceps), into the lumen during the anastomosis. Carelessness will cause intimal damage.
- Never grab the lips of the lumen.
- When tying, always square the knot, keeping the tail short and the loop small. A surgeon's knot is not necessary except when the anastomosis is under tension. The knot should be placed "snug," not tight, resulting in suture breakage and possibly cutting into the fragile vessel wall.
- When cutting the suture, keep the tail real short or long. Intermediate tails can get caught in the lumen with the next stitch.

– David W. Chang, MD

TIP #21

Ballooning the Vein to Facilitate Anastomosis

Because veins can be so pliable that the surface tension of blood and heparinized saline irrigant makes it difficult to determine whether the last few sutures placed in a venous anastomosis are not backwalling the vein, I routinely use this technique to teach residents and fellows how to avoid "backwalling" when placing the last few sutures in an end-to-end or end-to-side venous anastomosis.

I usually use two 9-0 nylon sutures placed 180 degrees apart from the other. The first side of the anastomosis is performed in a running fashion with the assistant providing traction on the suture while the surgeon is placing each stitch. After completing the first side, the opposite side is performed by running the 9-0 nylon suture until the last 3 to 4 sutures are to be placed. At this time, heparinized saline irrigant is introduced into the lumen of the vein such that the vein "balloons out" (becomes distended). Although the saline will leak out of the unsutured portion of the venous anastomosis, the surgeon and the assistant can determine immediately whether the vein was inadvertantly backwalled anywhere along the anastomosis. They can then place the last 3 to 4 sutures without any fear of backwalling the vein. If the vein deflates prior to completing the sutures, it can be reinflated.

– Gregory P. Reece, MD

TIP #22

Perforator Selection in DIEP Flaps

The DIEP flap creates less donor site morbidity than a free TRAM flap, but because there are only one-to-three perforators perfusing the flap, blood supply to the flap is also less robust. This is why DIEP flaps are not usually recommended for patients who are actively smoking. Proper perforator selection, however, can also reduce the incidence of partial flap loss and fat necrosis that would otherwise be elevated.

When performing a DIEP flap, the surgeon needs to find at least one perforator that is adequate to perfuse the flap. Usually a perforator from the lateral row is selected, because these are closer to the deep inferior epigastric vessels and because when elevating the flap from lateral to medial the surgeon comes across the lateral row first. All of the lateral row perforators should be isolated, then examined carefully with loupes to make sure that the vessels really are present. Sometimes what appears to be a large perforator is really just a large sensory nerve accompanied by some very small, inadequate vessels.

To successfully perform a DIEP flap, at least one included perforator should have a vein with a diameter of 1 mm or more and an artery with a palpable pulse (sometimes papavarine 2% must be applied topically before the pulse can be felt). If none of the lateral perforators meet those criteria, the surgeon is advised to either look for a suitable medial row perforator, try looking for better vessels on the opposite side, or convert the operation into a free TRAM flap.

Looking for a medial row perforator is best done from a superior approach. There is often a large medial perforator just inferior to and approximately 2 cm lateral to the

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umbilicus. If this perforator can be located from above, the surgeon will be able to evaluate it before sacrificing any of the lateral row vessels. Occasionally, however, it is necessary to sacrifice a small, superior lateral row perforator in order to visualize the medial row perforator. If this still does not make the medial perforator accessible, the surgeon then needs to decide whether to (1) convert to a free TRAM flap or (2) sacrifice more lateral row vessels to look for a medial row perforator. Sacrificing all the lateral row perforators to get better access to a medial perforator is obviously less risky if the surgeon already knows (from Doppler studies) that an adequate medial perforator exists. The risk is also reduced, obviously, if the opposite side is still available as a flap donor site.

Surgeons who are performing DIEP flaps should insist on including at least one adequate perforator in the flap. If the perforators are especially large, only one perforator is necessary. If they are small, there should be two (or sometimes even three). In this way, the incidence of partial flap loss and of fat necrosis can be kept at a reasonable level.

– Stephen S. Kroll, MD

TIP #23

Tips on Handling the Internal Jugular Vein During End-to-Side Anastomoses

When the decision has been made to use an end-to-side technique to the internal jugular vein, there are several methods available to stabilize the vein and prevent it from bleeding during the anastomosis. I generally prefer double-looped vessel loops above and below the site of anastomosis, but some pitfalls exist with this technique. Fortunately, some simple solutions are available to make this method safer and easier.

Since the internal jugular vein is often freed up for a considerable distance to allow it to be lifted up into the field, the vessel can twist along it's axis as vessel loops are pulled up into position. The vessel can actually twist 180 degrees or more with little indication to the surgeon. If only a small twist occurs and the flap vein is sufficiently lengthy, then the anastomosis may suffice. If, however, the twist is larger, the venous anastomosis will end up in an unfavorable position on the internal jugular vein when the vessel loops are released, and a revision will be needed. A simple way to avoid this problem is to place a marking pen line on the top of the vein, so that the correct orientation can be assured during vessel loop tightening. This maneuver will prevent unintentional twisting of the jugular vein and eliminate this cause for venous revision or even flap congestion or failure.

Another caveat is in order when using vessel loops to control the internal jugular vein. It is common practice to fix the snugged-up vessel loops to a nearby towel or drape during the anastomoses. However, sometimes these drapes are somewhat mobile and they often drift toward the wound during the anastomosis, causing bleeding into the lumen. Again, a simple maneuver can eliminate this annoying problem. I place two or three surgical staples in the skin at the wound's edge directly over the vessel loops and apply a hemostat to the loop beyond the last staple for secure purchase. The tension can be adjusted by relaxing or tightening the loop and then reclamping with the hemostat. These points of fixation are removed when the vessel loops are no longer needed. Staple fixation of the vessel loops has completely eliminated the problem of vessel loop drift.

– Howard N. Langstein, MD

TIP #24

Free TRAM Revascularization

In immediate breast reconstruction the thoracodorsal artery and vein are readily available to revascularize a free TRAM flap. These are some simple steps to make the microanastomosis easier and more reliable.

Positioning

1. Before the case begins, be sure both arms are abducted regardless of whether the procedure is a unilateral or bilateral reconstruction.
2. Position the first assistant above the contralateral arm and the microscope base in the axilla.
3. Rotate the table toward the assistant.

Microsurgery

1. Create exposure by putting traction on long sutures placed in the surrounding skin and pectoralis major muscle and clamping them to the surrounding drapes. This limits the number of instruments in the field.
2. Prepare the vessels from the serratus bifurcation to the axillary vessels. This provides maximum mobilization to lengthen and lift the vessels out of the axilla.
3. After preparation of the recipient vessels and positioning the microscope, ligate and divide the flap pedicle and place the flap on the chest wall. Temporarily secure the flap in a way that permits the pedicle vessels to drape into the axilla.
4. First do the vein followed by the artery. Select a segment of the thoracodorsal vein that is free of valves and close to the serratus bifurcation. Place a double-approximating microvascular clamp 1-1.5 cm above the planned site of the anastomosis, apply a hemoclip just above the serratus bifurcation, and divide the vessel. Secure the flap vein in the other side of the clamp.
5. Support the clamp and the vessels by stacking two moistened 4 x 8 gauze sponges folded into thirds and flattened beneath them. This creates a working platform and makes the vessels more accessible by isolating and lifting them out of the axilla. Insert a colored background material behind the vessels permitting only the vein to be on top.

6. Perform the microanastomosis with long instruments.
7. Follow the same procedure for the artery, and, voila... you are ready to shape the flap.

The flap ischemia time should be around less than one hour following these steps. Taking time for a thoughtful "setup," the recipient vessels can make the difference between a difficult and a smooth microvascular anastomosis.

– Michael J. Miller, MD

TIP #25

Use of Neurosurgical Rubber Attached "Fish Hooks" for Maximizing Donor Or Recipient Site Exposure and Dissection

Often the exposure for optimal surgical dissection at either a donor or recipient site is dependent on the number of assistants with retractors one is privileged to have (and also if they're awake!). All too often there may be a shortage of assistants and adequate exposure, especially during microvascular procedures, which can be a frustrating struggle.

Neurosurgical fish hooks with the rubber attachments are ideal for atraumatically retracting muscle, skin flaps, fat or just enlarging a cavity (e.g. free flap for breast reconstruction using axillary recipient vessels) and keeping the retractors themselves flat and out of the way of the operator's hands. A major advantage is that the hooks and rubber band attachments can be placed anywhere some retraction is necessary and the force of the retraction can be varied considerably. The hooks can even be placed within a cavity to elevate the level of the vessel dissections and make the anastomotic portion much easier. This is in contrast to the use of typical large retractors that frequently obstruct the surgeon's hands, especially for the microsurgical portion of the procedure.

– Geoffrey L. Robb, MD

TIP #26

Intraoperative Nerve Mapping

With the current state of technology, preoperative nerve involvement should be identified by physical and radiographic examination. If nerve involvement is suspected, intraoperative direct nerve stimulation should be arranged. The tumor is identified by the oncologic surgeon, and nerve involvement is assessed intraoperatively by determining whether deficits are caused by compression of an adjacent nerve or direct neural invasion. If the tumor directly involves the nerve, stimulation proceeds. The nerve is isolated both proximal and distal to the tumor invasion, and using loupe magnification and microsurgical instruments, groups of fascicles can be identified and dissected. Vessel loops are placed around each group of fascicles for easy identification and to prevent the electric current from "jumping" to an adjacent fascicular group. Proximally, a group of fascicles is isolated and placed into bipolar direct stimulator probe. These probes are connected to an EMG system which can deliver controlled stimuli (Nihon Kohden Neuropack-4). A neurophysiologist or technician is critical in interpreting the results. Distal to the tumor, each fascicular group is individually isolated with vessel loops, and the receiving bipolar electrode is placed on a selected fascicular group. Direct electrical nerve stimulation is performed on the proximal fascicular group, while the receiving electrode waits for the electrical current. It is important to make sure that the positive and negative currents are appropriately connected. If no electrical current is received by the distal electrode, the fascicle is noted and the distal electrode is placed on another fascicular group. The procedure is repeated. If a current is received by the distal electrode, both the proximal and distal group of fascicles are marked. Nerve reconstruction which would proceed after tumor extirpation should include grafts placed between these two marked fascicular groups. If no current is received from any of the distal fascicular groups isolated while stimulating a proximal group, tumor involvement within that fascicular group has probably occurred and the nerve fascicles are non functional. The same procedure is then repeated with another proximal fascicular group until all of the proximal fascicular groups have been tested.

An alternative to direct nerve stimulation is awake stimulation for motor and sensory identification. Cadaver dissections have demonstrated that the number of plexus formations and intercommunications between fascicles varies indirectly with the distance from the brachial plexus to the termination of the nerve. These changes in fascicular organization (internal topography) have allowed the reconstructive microsurgeon to identify motor and sensory fibers. Intrafascicular repair can be performed once these discrete topographic areas have been located. The patient is brought out of anesthesia until he/she is able to communicate with the surgeon. Groups of fascicles are identified as described above. Stimulation of sensory groups with a hand held nerve stimulator will elicit a specific painful sensory response from the patient. Stimulation of motor groups will elicit a dull aching sensory response in the region of the innervated muscle belly. This combined approach to nerve reconstruction and resection allows the surgeon the ability to use less nerve, specifically targeting those fascicles that are important in the restoration of function. This technique is useful for the patient with secondary reconstruction or if nerve resection is unexpected. Unfortunately, this technique is not useful for those patients with large tumor resections and can only be used in motivated, cooperative patients.

Once tumor extirpation has proceeded, microsurgical repair of the nerve ends should be performed.

– Gregory Evans, MD

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