THE AMERICAN SOCIETY FOR RECONSTRUCTIVE MICROSURGERY

VOLUME 6, NUMBER 2
AUTUMN 1995

RECONSTRUCTIVE MICROSURGERY

RECONSTRUCTIVE MICROSURGERY

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

President
Ralph T. Manktelow, MD

Editor
Saleh M. Shenaq, MD

Associate Editors
Roger K. Khouri, MD
Daniel J. Nagle, MD

Account Executive
Lynne Barribeau

Managing Editor
Marie Czenko Kuechel

© Copyright 1995
The American Society for Reconstructive Microsurgery, Inc.

Reconstructive Microsurgery is published three times yearly for members of ASRM, a non-profit organization. The subscription price is included in the annual membership dues. All correspondence and address changes should be addressed to:

Reconstructive Microsurgery
ASRM
444 East Algonquin Road, Suite 150
Arlington Heights, Illinois 60005
708 228-9717

The views expressed in articles, editorials, letters and or publications published by ASRM are those of the authors and do not necessarily reflect the society's point of view.

Young Microsurgeon's Perspective: Endoscopic harvest for free tissue transfer

By Michael J. Miller, MD

Endoscopic, or minimally invasive surgery (MIS) is being enthusiastically introduced into a variety of surgical specialties, and reconstructive microsurgery is no exception. At the most recent annual meeting of this society, 5 papers describing minimally invasive tissue harvest were presented in the scientific session, and an instructional course was offered. As more surgeons try their hand at these procedures it is natural to wonder whether this technology represents a genuine advance or mere gimmickry. Why make a straightforward operation more difficult by trying to do it through an endoscope? Why, indeed? If you are asking these questions, find a comfortable chair. Close your eyes. Envision what may well be the future of reconstructive microsurgery...

It is easy to identify the most fanciful part of this scenario. Lest one become skeptical of the rest, be aware that all of the technology described is under active development in a variety of centers nationwide. For the moment, however, we must turn to 1995 and consider the current state of minimally invasive tissue harvest.

Intrabdominal tissue harvest

The most commonly used tissue for reconstructive microsurgery in the abdomen are the jejunum and the greater omentum. Techniques of minimally invasive and minimal surgery are at a high level of development, and these have been adapted to tissue harvest.

You have completed the preparations for today's surgery, reconstruction of a complex composite defect. Based on a three-dimensional computer model, tissue molds were fashioned 6 weeks ago and inserted into the patient filled with biodegradable polymers, cultured progenitor cells, and induction factors. The tissue-engineered flap will restore the defect precisely.

Rather than scrubbing for surgery, you sit down at a computer console. The instruments you pick up feel the same in your hand but are linked to the operating field through a computer which operates robotic manipulators. The sights, sounds, smell and feels of the operating room are recreated in your headset. You perform the dissection watching an endoscopic video image and guided by real-time computer overlays that demonstrate the deep anatomic landmarks as if the tissue were transparent. The virtual environment gives you the sense of actually being present inside the patient as you work. You have become accustomed to the fact that your patient, unable to come to you, is on an operating table 500 miles away, and you are working via satellite.

The procedure now complete, you type in your account number on the console and find that the patient's insurance company, ever cooperative, has already transferred the payment in full.

(continued on page 4)

New and different perspectives

Microsurgery is a speciality of innovation and experimentation; advances are made by exploring new techniques and improvising on more established techniques. Just as our surgical practices evolve, so must the ways in which we communicate our advances, perspectives and the issues facing reconstructive microsurgeons.

This issue of *Reconstructive Microsurgery* introduces two new ways to explore our specialty. The *Young Microsurgeon's Perspective*, is a look into the future and how not so far off it is, through the eyes of Michael Miller, MD. In this specialty, as Dr. Miller's contribution on endoscopic harvest of free tissue transfer affirms, it is often the creativity and ingenuity of a surgeon that leads to advancements in patient care.

Different techniques can be used to treat like injuries, and physician perspectives differ on preferred techniques. In *Counter Perspective*, Harry J. Buncke, MD and William C. Pederson, MD share their perspectives of post-traumatic thumb reconstruction.

EDITOR'S MESSAGE

Saleh M. Shenaq, MD

As our surgical practices evolve, so must the ways in which we communicate .

If you have a perspective different from those published, please share them with *Reconstructive Microsurgery*. It is through the exchange of ideas and information that this publication offers, that we are able to further experiment and advance our skilled ingenuity as microsurgeons.

In reading this publication, do not overlook our foremost forums for exploring new techniques and advancing skills. The message from Ronald M. Zucker, MD, Program Chair for the11th Annual ASRM Meeting invites you to attend. Please do plan to attend. And while creating time for the meeting in Tucson, plan ahead to participate in the May Reconstructive symposium in Seattle. The advancement of our specialty requires that each of us contribute and participate to further advancing reconstructive microsurgery. RM

Trauma symposium scheduled for spring

Advances in reconstruction of the leg and upper extremity following trauma, infection and tumors, and discussion of innovative techniques will be presented during *Limb Salvage and Reconstruction: A Multidisciplinary Approach*, May 8 -11, 1996 in Seattle, WA. The course is co-sponsored by the ASRM and the Plastic Surgery Educational Foundation; and Thomas Trumble, MD and L. Scott Levin, MD are serving as co-chairs. The American Academy of Orthopaedic Surgery, the Orthopaedic Trauma Association, the American Association for Hand Surgery and the American Society for Surgery of the Hand have endorsed the symposium.

The goal of this multi-disciplinary program is to evaluate the classification and treatment of injuries, infections and tumors from the standpoint of combining skeletal and soft tissue surgeries to select the optimal reconstructive technique from the different options available for the particular category of disease or injury.

Controversies regarding treatment of open fractures in adults and children with internal fixation, external fixation or Ilizarov fixation as well as soft tissue reconstruction are analyzed separately for the upper extremity, leg, ankle and foot. Selection and design of free tissue transfers are highlighted with panels of experts. Options such as bone grafting, Ilizarov bone transport and vascularized bone grafting are discussed in protocols for infections and non-unions. Reconstruction of skeletal and soft tissue defects following tumor surgery are discussed including techniques such a combined allografts and vascularized bone grafting in limb salvage surgery.

Call for free papers

Clinical or experimental papers, case reports and problem cases dealing with topics as listed above, will be considered for 3 minute presentations. Abstracts should be 250 words or less and should be typed single-space on a single sheet of paper. Pertinent photographs may also be included. Abstracts must be received by the PSEF by January 5, 1996 and may be sent to: PSEF, 444 East Algonquin Road, Arlington Heights, IL 60005. RM

Issues for a second decade

PRESIDENT'S LETTER

Ralph T. Manktelow, MD

What will be the most important issues in microsurgery in this Society's second decade of activity?

Will we continue to fine-tune our current microneurovascular techniques in accepted areas of activity? Without a doubt, yes. The dramatic improvement in patient care in head & neck reconstruction following tumor resection is perhaps the most obvious example of the impact of our sub-specialty on the quality of medical care. Lower extremity salvage is also alive and well as an established technique using microvascular bone and soft tissue reconstructions, and post-mastectomy breast reconstruction is becoming much more of an accepted treatment option. All of these areas can stand further improvement as we finesse soft tissue and bony free tissue transfer.

Will we continue to search for new tissues to transfer using neurovascular techniques and develop new ways of applying them to inadequately solved patient problems? Undoubtedly the answer is yes. Brachial plexus, facial paralysis and functional hand reconstruction are particular areas where there is still a major need for improved quality of surgical interventions.

The major motivation for most surgeons to enter medical practice is to provide excellent patient care. We enter microsurgery because of our perception that the specialty offers unique and improved treatments for many complex medical problems, and exciting opportunities to use our surgical skills. However, microsurgical procedures are lengthy and costly and the health care system must accept these expensive procedures.

Clearly at this stage in our Society's life it is necessary that we provide justification of operative procedures.

Clearly at this stage in our Society's life it is necessary that we provide justification of operative procedures, and this must be done in as objective a manner as possible. Procedure justification through outcome studies has become one of the dominant needs of our Society. We are pursuing this through the Clinical Guidelines and Outcome Studies Committee. As well, individual members are involved with many extensive studies to assess the value of microsurgical procedures. These studies are critical to the future development of microsurgery, to its continued clinical acceptance, and to the viability of our Society. RM

Microsurgery Calendar

October 7-11, 1995
ASPRS/PSEF/ASMS
Annual Meeting
Montreal, Canada
Contact: ASPRS
(800) 766-4955, ext. 404

January 10-13, 1996
AAHS 26th Annual Meeting
Palm Springs, CA
Contact: AAHS
(708) 228-8375

January 14-17, 1996
ASRM 11th Annual Meeting
Tucson, Arizona
Contact: ASRM
(708) 228-9717

February 6-10, 1996
International Society of Reconstructive Microsurgery
12th Symposium
Singapore
Contact: ISRM
(65) 772-4340

February 22-27, 1996
AAOS Annual Meeting
Atlanta, GA
Contact: AAOS
(708) 823-7186

May 8-11, 1996
ASRM/PSEF
Limb Salvage and Reconstruction: A Multidisciplinary Approach
Seattle, WA
Contact: PSEF
(708) 228-9900

(continued from page 1)

Jejunal Harvest

Jejunal segments are well-suited for endoscopic harvest. Our work in this area began in 1992 with a series of trials in large animals in which the feasibility of jejunal harvest was tested and the safety of microvascular transfer was demonstrated. Clinical cases of endoscopic jejunal harvest are now performed at M. D. Anderson Cancer Center under an experimental protocol. Our specific techniques have been published in several sources. Patients are considered candidates if they require circumferential reconstruction of the cervical esophagus, have not had previous upper abdominal surgery, and are not obese. During the procedure, indications for conversion to an open operation include poor visualization of the vascular anatomy, failure to progress with the dissection at a reasonable pace, or the occurrence of complications (e.g., uncontrollable bleeding or intestinal perforation).

We find the procedure still cumbersome and more time-consuming than an open technique, and have been unable to demonstrate a clear reduction in morbidity except for reduced scarring. Nevertheless, the techniques and instrumentation are still in development, and the goal is to make the procedure quick, practical, and safe. It is possible the indications for jejunal tissue may expand if it may be obtained with decreased risk and morbidity.

Omental Harvest

The greater omentum, highly vascular and mobile, poses a more difficult challenge than jejunal harvest. Although Renato Saltz, MD, currently of the University of Utah, and coworkers at the Medical College of Georgia, have described clinical experience with an endoscopically-assisted harvest technique, a totally endoscopic procedure has yet to be reported. We have only worked with the omentum in large animals and human cadavers. Practical harvest of this tissue awaits improved instrumentation.

Subcutaneous tissue harvest

Subcutaneous tissues used in reconstructive microsurgery include muscles, nerves and veins, and several investigators have described harvest of these structures. Subcutaneous dissection presents a unique problem for MIS. MIS requires separation of the tissues to create a space for visualization, an "optical space." Currently, most MIS procedures are performed in a body cavity bounded either by a rigid framework or a soft tissue lining that may be distended by insufflating with gas or instilling liquid.

For example, optical space is maintained in the thorax by the relatively rigid supporting structures of the chest wall; in the abdomen, the peritoneal lining allows insufflation with gas; and the joint capsule allows distention with optically clear liquid for visualization during arthroscopy. However, the subcutaneous space is not bounded by distensible structures. Thus, the challenge has been to devise a satisfactory means of creating the necessary optical space. Various devises — balloons, internal retractors, external lifters, etc. — have been used, but the optimum strategy has yet to be found.

Minimally invasive surgery is similar to microsurgery in that both are technology dependent.

Latissimus dorsi muscle harvest

Endoscopic harvest in the latissimus dorsi muscle is the subcutaneous procedure closest to becoming practical. It may be performed through an axilary incision, thus avoiding a long scar on the back. The vascular pedicle may be dissected using conventional surgical technique, and the body of the muscle may be obtained by tunneling subcutaneously with the endoscope. Clinical cases have been performed at M. D. Anderson Cancer Center and have been reported by surgeons at a number of other centers. The largest series, 30 patients, was presented by Felmont Eaves and colleagues at Emory University, at the most recent annual meeting of the American Association of Plastic Surgery (San Diego, 1995). The group at Emory has developed a specialized retractor to which the endoscope is mounted that greatly assists in performing the procedure.

Rectus abdominis muscle harvest

Endoscopic harvest of this muscle would replace the long paramedian incision with a low transverse scar that is less deforming. The rectus muscle is unique in that it may be approached anteriorly, thorough the subcutaneous space, or posteriorly through the abdomen. We have successfully harvested and performed microvascular tissue transfers of the rectus abdominis muscle in large animals and human cadavers. The transabdominal route offers the advantage of excellent visualization. The primary disadvantage of this approach is that it converts an essentially subcutaneous procedure into an abdominal operation, and it has yet to be performed clinically. The anterior route is a more conventional approach, but it is associated with the significant limitations of subcutaneous dissection. Although we have performed one case of rectus muscle harvest by this approach, we found it extremely cumbersome. Again, practical use of these techniques for harvest of this tissue awaits innovative new instrumentation.

Neurovascular tissue harvest

Reconstructive microsurgery often requires grafts of nerve or vein that are conventionally harvested through long incisions. The goal is

Message from the Program Chair

As summer progresses, we enter the final phases of preparation for the upcoming ASRM meeting in Tucson. We hope to encourage an active interchange of ideas on both a scientific and recreational level. To accomplish this, a diverse program is planned.

The free paper sessions make-up the fundamental basis for the program. This year, papers will be six minutes in duration with a four minute discussion period. There will be key lectures in each of the three days of the meeting that we hope will provoke considerable discussion. The instructional courses will not only cover key clinical areas, but also address education and research.

This year we plan to expand the meeting to include pre-conference activities. On Sunday, January 14, there will be a pre-conference symposium which outlines all aspects of free tissue transfer and is specifically designed for residents and fellows. In addition to this, the established practitioner can take part in small group problem solving sessions, which will hopefully stimulate discussion and interactive participation. During the meeting itself, a new format for poster presentation will be inaugurated and for the first time prizes will be awarded for the best posters. We hope to introduce a video session as well. Lastly, don't miss the debate where logic and science will try to sway your vote.

I look forward to meeting you in Tucson and encourage your active participation.

Ronald M. Zuker, MD, FRCS (C), FACS
Program Chair
1996 ASRM Scientific Meeting

to obtain these tissues through a single small incision. We find it is still difficult and impractical to obtain useful grafts using currently available instrumentation.

From endosurgery to cybersurgery

Although endoscopic harvest of a variety of tissues has been successfully demonstrated, current techniques do not present a practical replacement for conventional tissue harvest. They are too cumbersome and time-consuming without improved instrumentation and imaging. Minimally invasive surgery is similar to microsurgery in that both are technology dependent. Improved operating microscopes, instrumentation, suture material, and the evolution of surgical technique over the last 2 decades have made reconstructive microsurgery routine in many centers. A similar, but more intense development is taking place regarding minimally invasive surgery, and it is likely that microsurgeons will be routinely using these techniques. Future micro-endo-cybersurgeons may look back to our contemporary surgical techniques and marvel at what we were able to accomplish in our primitive world. RM

Michael J. Miller, MD is from the Department of Plastic Surgery, The University of Texas M. D. Anderson Cancer Center, Houston, Texas.

Missing Thumb Reconstruction with a Large Toe

Harry J. Buncke, MD

Loss of the thumb is variously equated as loss of 40-60% of hand function and restoration of thumb length and function is of utmost importance in all hand reconstruction. We have, for the past twenty or so years, favored the entire large toe for thumb reconstruction, sometimes carrying the metatarsal joint if necessary. One's immediate concern is the defect created by the loss of the large toe.

We and others have done gait analyses on patients having toe transplants and have found that weight is rapidly shifted to the lateral four metatarsal beads and that the majority of patients have no appreciable problems. Many of them compete competitively in sports. We even have one toe-to-hand transplant recipient who played for the Ecuadorian national soccer team after his thumb reconstruction.

However, there are problems with neuromas on the digital nerves and delay in healing, particularly when a lot of skin is carried with the toe. We have learned that it is better to have a skin graft on the hand rather than on the foot. If a lot of tissue is required in the thumb area in the first web space, it is better to do a preliminary resurfacing of the area with a conventional tube-pedicle flap or simultaneous groin flap, lateral arm flap or muscle flap, as we have done in several cases.

We feel that the entire large toe, or at least the functional distal interphalangeal joint, forms the best reconstruction because it provides the vice-like pincer effect of the distal joint of the thumb. One needs at least 15 degrees of voluntary flexion at the distal joint to be able to grasp objects without having them slip out of one's hand.

Techniques which produce a stiff distal joint or a joint that doesn't have useful flexion do not provide a truly successful thumb replacement because this critical flexion is important in key pinch, pulp-to-pulp, thumb and index pinch and three-finger chuck-type pinch. It is also important in grasping to be able to curl around large objects and with the width of the palm to create forceful twist-grip or grasp. Mobility therefore is important in thumb reconstruction. It is not just an idle post that the rest of the fingers oppose against; it is a strong contributor to pinch, grasp and dexterity.

One of the principle criticisms of the large toe transplant is that it is larger than the opposite, normal thumb. We admit this, but also point out that the toe, once transplanted to the hand, decreases in size at least by 30% and we have demonstrated this on numerous presentations and in particular, in our recent text, *Microsurgery: Transplantation-Replantation*. Few of our patients complain about the difference in size. As others have pointed out, the thumb can be trimmed down by taking out ellipses from either side of the pulp or a central ellipse of pulp on the volar surface or, for that matter, taking out an entire wedge from the medial side of the large toe, including a portion of the distal phalanx, the joint and the proximal phalanx. This has been popularized by Fu Chan Wei, MD. However, in our experience with over 100 large toe transplants, we have revised only one, and to our knowledge only one other of our patients was revised by another surgeon.

In summary, we feel that great toes make great thumbs that are big, strong and functional.RM

Video reviews

Preconditions of Microsurgical Skills

Author: Robert D. Acland, MD

Intended Audience: Any physician who is learning microsurgical skills

Length: 55 minutes

Rating: Excellent 5 fingers

Summary: This very organized introductory tape to microsurgery outlines the fundamentals necessary for successful microsurgical operations. In many ways, these same principals are applicable to any operation and are well noted. Dr. Acland describes the proper psychological frame of mind, emphasizing a positive attitude toward difficulty and rational approach toward adequate rest when performing demanding procedures. He also delineates proper surgical technique with excellent illustrations of improper hand and arm positions which would result in fatigue. He then describes correct techniques to avoid fatigue and frustration while operating. Dr. Acland's theme of "preparation being the key to success in surgery," is emphasized. He describes the preparation of the operating microscope with a pre-operative check of mechanical operation and eye piece adjustments. The tape concludes with descriptions of proper instrument care and the necessity of having precise, well-functioning instruments for successful microsurgery. This tape is primarily intended for physicians learning microsurgery in conjunction with laboratory exercises.

Basic Microsuture Technique

Author: Robert D. Acland, MD

Intended Audience: Surgeons learning microsurgical technique

Length: 27 minutes

Rating: Excellent 5 fingers

Summary: This videotape demonstrates proper and improper suturing techniques and illustrates a series of exercises for the student microsurgeon which will lead to success in microsurgery. Dr. Acland outlines needle retrieval techniques, proper position of the needle in the

Thumb reconstruction with great toe wrap-around

William C. Pederson, MD

The majority of patients in my hand practice needing thumb reconstruction have loss of the thumb from the level of the metacarpophalangeal (MP) joint. In this group of patients, I have found that the great toe wrap-around procedure offers an excellent option for reconstruction of thumb function. I learned this technique from Dr. Wayne Morrison of Melbourne, Australia (its originator) with modifications from Dr. Kaz Doi of Ube, Japan, who have both been great contributors to the technique of great toe wrap-around.

Many patients lose the thumb in an area just distal to the MP joint, and these are ideal candidates for great toe wrap-around reconstruction. In these patients, all that is lost functionally with a wrap-around is interphalangeal (IP) joint movement, which imparts a minimal morbidity in most patients. As originally described, the great toe wrap-around flap took only a small piece of bone underlying the nail bed, with a nonvascularized bone graft placed to support the soft tissues. This transfer has been very popular with Japanese surgeons, however the early series from Japan revealed an unacceptably high incidence of resorption of the bone graft in the distal portion of the transfer. This has been remedied by taking the entire distal toe phalanx with the transfer, the technique which I currently use. An intercalated bone graft may be needed to reconstruct adequate length, but if the MP joint is present, little function is lost. When the bone graft is fixed distally to a vascularized segment (the toe distal phalanx), I have found that bone graft resorption is not a problem.

The two primary advantages in wrap-around reconstructions are cosmetic (at the hand) and morbidity (at the foot). With proper care in design, the wrap-around flap can be made to nearly exactly match the opposite normal thumb. This requires both bony resection of the condyles of the distal toe phalanx and proper skin design. Care must be taken to avoid making the skin closure too tight, however, which can result in loss of the flap. The nail is narrowed by subcutaneous resection of a portion of the growth plate so that the width of the nail matches that of the opposite normal thumb. Patients will sometimes request secondary procedures to refine the '"cosmetic" appearance of the transfer, but these are generally limited to a mid-pulp excision to narrow the width of the reconstructed thumb. Early series of this transfer noted instability of the pulp, but this is prevented by taking the distal phalanx which leaves the supporting fibrous septae intact.

With conservation of the proximal toe phalanx at the foot, morbidity is minimal. I attempt to take the least skin possible from the foot to avoid further morbidity, a technique which has been emphasized by Harry J. Buncke, MD and James W. May, Jr., MD, among others. This often requires prior flap placement on the thumb stump to obviate the need for further skin harvesting from the foot (I prefer the placement of a pedicled groin flap as a first stage, if necessary). With prior flap coverage, just the skin necessary to reconstruct the thumb can be taken from the foot. With this approach, enough skin is usually left on the foot to close the remaining toe with minimal skin grafting (which we often take from skin trimmed from the groin flap on the hand).

(continued on page 8)

needle holder, needle handling by the needle holder, and knot tying techniques. Again, his excellent use of examples of poor technique help one to understand how proper technique can make all the difference in microsurgery. This is an excellent tape for physicians learning microsurgery.

Rat Femoral Artery Anastomosis

Author: Robert D. Acland, MD

Intended Audience: Physicians learning microsurgical technique

Length: 53 minutes

Rating: Excellent 5 fingers

Summary: This teaching tape illustrates the details of performing rat femoral artery anastomosis (anesthetizing the animal, performing the operation, and assessing vessel patency). Dr. Acland demonstrates the laboratory techniques essential to performing successful anastomoses: vessel preparation, adventitial trimming, vessel dilation, and vessel suturing technique. This videotape is essential viewing before going to the micro lab to perform this operation for the first time. This excellent videotape is specifically targeted to individuals working on microsurgical technique in a teaching laboratory, and would be beneficial to anyone interested in microsurgical technique. RM

Timothy S. Loth, Chair
Audiovisual Committee

Video Rating Scale

5 Finger Replant
Excellent

4 Finger Replant
Good

3 Finger Replant
Fair

1 Finger Replant
Poor

(continued from page 7)

The primary morbidity from wrap-around transfers, in my experience, comes from poor take of grafts on the remaining proximal toe phalanx of the foot.

In my practice, I often have trouble convincing patients that they will suffer little from loss of the entire great toe, despite the fact that I always show them pictures of other patients (some in "active" poses after loss of the toe). On the other hand, if I explain that they will still have the proximal portion of the toe intact, they will often agree to toe transfer (explanation includes patient photographs as well). Likewise, I feel that a properly positioned wrap-around (with the fused IP joint at a measured 10° of flexion) gives an excellent thumb in terms of function and grip. Most of my patients are working men, with functional concerns certainly outweighing cosmetic ones, and in this group a wrap-around with a fused IP joint generally allows them to return to work. Office follow-up in these patients reveals good grip and key pinch, even with loss of IP joint motion.

It is important to note that I prefer total great toe transfer in patients with thumb loss proximal to the MP joint, despite the cosmetic advantages of the wrap-around procedure. Due to patient preference, however, I often end-up performing a wrap-around procedure even in this group. Even with loss of both MFI and IP motion, these patients have excellent function. Toe transfer, in whatever form, remains the preferred technique for thumb reconstruction in my hands, in most patients with traumatic loss of the thumb.**RM**

One more way
to help enhance your skills.

We're proud to serve as exclusive sponsors of the ASRM newsletter. We see it as one more opportunity to deliver on our promise to make your work easier.

It's a promise we made more than two decades ago when we began crafting Sharpoint® microsurgical sutures and knives. From the beginning, their advanced design, superior sharpness, and exceptional consistency helped make each procedure less stressful, more efficient, and more effective. They still do.

Today, we're taking our promise a step further by investing in educational tools that enhance your ongoing training, like our series of instructional videotapes, our PracticeRat™ training simulator, and this publication.

Sharpoint®

The more consistent the instrument, the more efficient the procedure.

©1994, Surgical Specialties Corporation. Sharpoint is a registered trademark of, and is manufactured by, Surgical Specialties Corporation, P.O. Box 310, Reading, PA 19607, U.S.A.

RECONSTRUCTIVE MICROSURGERY

444 East Algonquin Road
Arlington Heights, Illinois 60005

Inside this issue:

Young Microsurgeon's Perspective 1
Program Chairman's Message 5
Counter Perspective 6

Continuing the Progression

As we wind up the 11th Annual Meeting of the American Society for Reconstructive Microsurgery, I think it may be helpful to reflect on our past and perhaps comment on our future.

Our society was founded in 1983 and the first annual meeting was held on January 18 and 19, 1985. As a new and young society, our membership was limited and consisted primarily of American Society for Surgery of the Hand members who had a dual interest in hand surgery and microsurgery.

For the first nine years, our annual meeting was held in conjunction with the American Society for Surgery of the Hand. It was felt by our leadership and our membership that this would promote the society, increase membership, and increase attendance at our annual meeting. Nevertheless, over the ensuing ten years it became apparent to the ASRM membership that we had a cadre of devoted individuals whose practice primarily centered around microsurgery.

As with any parent and child relationship, it was difficult to sever the ties, but our tenth annual meeting in Marco Island, Florida, was a joint meeting held in combination with the American Association of Surgery of the Hand. This was the ASRM's first attempt to have a meeting at arm's distance from the larger organization, the ASSH. Even with a successful meeting our membership clamored for complete autonomy. Our society voted during the business meeting to have a stand alone meeting the next time.

With this mandate, President Ralph Manktelow forged ahead to hold the first stand alone meeting of the American Society for Reconstructive Microsurgery. Our major concerns at the executive level were; would we attract enough people to make this fiscally possible? Would there be enough abstracts submitted to a stand alone meeting so that the scientific session could have merit? The answer to both was a resounding, "YES!" Our attendance was nearly 250 people, more than enough to assure financial success, and the number of abstracts submitted and the quality of the abstracts was outstanding. Now that the 11th Annual Meeting has come and gone we can say that it was an unequivocal success.

PRESIDENT'S LETTER

James A. Nunley, MD

Now that the 11th Annual Meeting has come and gone, we can say that it was an unequivocal success.

With this as a background, our 12th Annual Meeting will be held in Boca Raton, Florida, and although the American Association of Surgery of the Hand will be meeting prior to our annual meeting, this will not be a combined meeting but, rather, our second stand alone meeting. I sincerely hope that the membership will continue to support our efforts to maintain the scientific quality, and I hope that all of you will continue to lend your financial support by attending our 12th Annual Meeting.

As we plan for the future of our society we have several new initiatives which I plan to institute this year. I will bring these forward to you in our next mid year newsletter. I would particularly like to remind those of you who are interested in applying for the Godina lectureship that the deadline for submission is May 31, 1996. **RM**

Boca Raton

12th Annual Meeting Ahead!

The 1997 Annual Meeting in Boca Raton, Florida, is the members' opportunity to exchange ideas and techniques in an open forum. The Founders and Godina lectureships are designed to stimulate and provoke, and will continue to be a focal point for the meeting. In addition, free paper and poster presentations give members the opportunity to present new techniques and research to a gathering of peers.

ASRM members are invited and encouraged to be a part of this annual exchange of ideas and knowledge. Your participation is ultimately what will make the 1997 Annual Meeting a success!

Godina Memorial Lecturer

Applications are now welcome for individuals interested in presenting the Godina Lecture at the Twelfth Annual Meeting The lecturer must be a member of ASRM and under the age of 43 when the lecture is given. He or she will receive an honorarium of $500 and the Godina Memorial Medal.

Members interested should submit a single paragraph outline of a 30 minute lecture, by May 31, 1996 to:
President James A. Nunley, II, MD
Box 2919
Duke University Medical Center
Durham, NC 27719

The Godina Memorial Lecture, as established by the trustees of the Marko Godina Fund, is in honor of Marko Godina, MD who died in 1986 at age 43, in the prime of a very successful career in microsurgery. **RM**

What's New in Reconstructive Microsurgery

(continued from page 1)

The same authors presented an elegant study whereby the search for an easier and faster technique than conventional needle and thread suturing was attempted in order to facilitate the technique of microvascular repair. In their study the authors used stents made of inert triglyceride compound (Witepsol H37), which melts at body temperature. As an anvil to assist in the microvascular repair, these stents were designed such that they fitted snugly inside the lumen of the vessels to be approximated and allow for an eversion of the edges for micro stapling. The rabbit's, common carotid artery (2mm) was used in the study. A micro stapling device was applied as the method of vessel repair. To assess whether the stent causes peripheral emboli after it melts, stented/stapled microvascular anastomoses were also performed in a free flap model using the temporal ear artery. The results of the study suggest that stapled anastomosis had excellent approximation of the intimal edges without significant anastomotoic stenosis. There was no observable side effect from the stent material and no evidence of peripheral emboli in the free flap model. This technique appears to be simple and safe when performed by a novice surgeon operating without an assistant. This technique may pave the way for endoscopic microvascular surgery.

"Endoscopic Saphenous Vein Harvest: Technical Refinements" Authors: Lawrence S. Bass, MD, Nolan S. Karp, MD, New York, New York

The authors sought to refine techniques for endoscopic harvest of the saphenous vein to minimize undermined tissue, tissue trauma and incisions in a cadaveric study. Surgical technique included 1-1.5 cm incisions placed above the ankle and knee with identification of the vein under direct vision. A balloon device is inserted and inflated creating a 3 cm wide cavity over the vein from ankle to knee and knee to groin. After deflation and balloon removal, blunt dissection is performed using a modified liposuction cannula to mobilze the vein. A 4mm 30 endoscope is used for visualization, with retraction provided by a scope sheath as in an endoscpic browlift. Side branches were treated with a small endoscpic clip applier or with bipolar scissors as needed. This modification in the author's opinion provided significant improvements to the currently described endoscopic procedures. Dissection time, wound complications and the width of the dissected cavity are reduced. Such refinements could help in minimizing the morbidity when saphenous vein grafts are harvested for microvascular, vascular and cardiovascular procedures.

"Brain-Derived Neurotrophic Factor and Collagen Tubulization Enhance Peripheral Nerve Regeneration" Authors: David S. Utley, MD, Sheryl L. Lewin, BA, Elbert T. Cheng, BS, and David J. Terris, MD, Stanford, California

This study investigated the effects of brain-derived neurotrophic factor (BDNF) on the regeneration of peripheral nerves repaired by epineurium coaptation or collagen tubulization. The left sciatic nerve was used as the model in the study. Five techniques were studied: epineurium coaptation (EC alone), collagen tubulization (CT alone), epineurium coaptation with BDNF delivered to the repair site via implantable osmotic pump (EC/BDNF pump), CT with BDNF delivered to the repair site via implantable osmotic pump (CT/BDNF pump), or CT with BDNF covalently cross-linked to the collagen tubule matrix (CT/BDNF linked).

Histologic examination and axonal counting as well as muscle mass from each animal's gastrocnemous and soleus group were analyzed. In their study the authors concluded that BDNF or collagen tubulization improves the rate and the degree to which recovery of sciatic function occurs after nerve injury and repair. Animals whose nerves were repaired using a technique of CT/BDNF linked showed the most favorable recovery compared to all other groups. This study and other similar studies certainly will pave the way for gene therapeutic approaches to nerve regeneration.

"A New Thrombolytic Gene Therapy Utilizing Adenoviral t-PA Construct: An Experimental Model" Author: Eric Rabinovsky, PhD, Houston, Texas

The author presented a model of thrombolytic gene therapy utilizing an adenoviral t-PA construct in a rabbit model. A segment of the rabbit femoral vein was injected through the epigastric branch with the virus construct through a 26-gauge catheter. Initial studies showed that adenovirus is able to infect endothelial cells and express recombinant proteins (beta-galactosidase (b-gal) in a time dose-dependent fashion. Infection of endothelial cells was obtained in as little as one minute. Studies with transfer of AD-t-PA constructs showed that the level of secreted t-PA increased nearly fourfold after 24 hours. This model allows researchers to apply this technique as a therapeutic model for prevention and treatment of vessel thrombosis, both in micro and microvascular surgery. The avoidance of systemic bleeding as a result of the traditional thrombolytic agents such as t-PA, etc. and the potential utility of such therapeutic modality in coronary artery disease is unlimited. This further emphasizes the importance of such studies. **RM**

One more way to help enhance your skills.

We're proud to serve as exclusive sponsors of the ASRM newsletter. We see it as one more opportunity to deliver on our promise to make your work easier.

It's a promise we made more than two decades ago when we began crafting Sharpoint® microsurgical sutures and knives. From the beginning, their advanced design, superior sharpness, and exceptional consistency helped make each procedure less stressful, more efficient, and more effective. They still do.

Today, we're taking our promise a step further by investing in educational tools that enhance your ongoing training, like our series of instructional videotapes, our PracticeRat™ training simulator, and this publication.

Sharpoint®

Again. And again. And again.

©1995, Surgical Specialties Corporation. Sharpoint is a registered trademark of, and PracticeRat is a trademark of, and are manufactured by: Surgical Specialties Corporation, P.O. Box 310, Reading, PA 19607, U.S.A.

Highlights from the 11th Annual Meeting in Tucson

Terence Dickinson, presented the Keynote Lecture during the program.

1996 Scientific Program Chair Ronald Zuker, MD (left) presents the Awards to the top three poster presentations. (From right to left) Gunter Germann, MD, Melinda Haws, MD and Amado Ruiz-Razura, MD.

Past President Ralph T. Manktelow, MD dances with Navajo children dancers at the ASRM Reception and Dinner.

Past President Ralph T. Manktelow, MD (center) and 1996 Scientific Program Chair Ronald Zuker, MD (right) present Fu Chan Wei, MD (left) with the Founder's Lecturer Plaque.

Shown in the photo at left are Past President Ralph T. Manktelow, MD (right) and the 1996 Marko Godina Speaker, Randolph Sherman, MD.

A good time was had by all at the Welcome Reception.

Daniel Nagle, MD (left) and Julian Pribaz, MD prepare for the Great Debate.