Cerebrovascular NEWS

Spring 2002

AANS/CNS Section on Cerebrovascular Surgery

Editor:
Robert M. Friedlander, MD, MA

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Chairman's Message

Robert Harbaugh, MD

Hunt Batjer, MD, the present chairman of the AANS/CNS Section on Cerebrovascular Surgery (SCVS), has given me the opportunity as the SCVS chairman-elect to write the Chairman's Message for this edition of *Cerebrovascular News*.

I have been privileged to participate in the work of the SCVS during the last 12 years. In 1990 I doubt that any of us could have predicted the dramatic changes that have occurred in our organization over this short period of time. We have grown from a small group of neurosurgeons with an interest in cerebrovascular surgery and a very limited agenda to a vigorous organization with ties to interventional neuroradiolgy, stroke neurology, neuroanesthesia and neurological critical care. In 1990 we did not have an independent meeting. Now, our annual meeting, held jointly with the American Society of Interventional and Therapeutic Neuroradiology (ASITN) for the last five years, has become one of the premier forums for sharing information on the treatment of cerebrovascular disease. Our agenda is no longer limited, but large and complex. It will require serious thought, hard work and commitment if we are to meet our responsibilities to our members and our patients.

I would like to share with you some of the issues facing us in the next few years. I would also greatly appreciate your input regarding all of these issues. Your calls and e-mails are encouraged.

Perhaps the most pressing issue at present is the participation of vascular neurosurgeons in randomized trials of surgical versus endovascular treatment for patients with intracranial aneurysms. We need to be diligent in our review of the various trial proposals to assure that the trials will help us meet the objectives of the SCVS "to promote and assure the advancement of knowledge in the area of cerebrovascular surgery." To achieve this goal a committee, chaired by Chris Loftus, MD, was charged with generating a list of criteria by which to judge such trial proposals. We believe that proposed trials that do not pass muster should not be done, as conclusions drawn from the data are likely to be misleading. We must be honest brokers in this contentious area that has so many implications for the treatment of patients with cerebrovascular disease.

A second issue of great importance is maintaining the financial vigor of the SCVS. With the advent of our annual meeting, the SCVS treasury grew substantially. However, we have noted a disturbing trend of diminishing returns despite excellent meeting attendance. Let me assure you that the SCVS leadership will exert due diligence in looking at all of our sources of income and at all of our expenses to assure that we are meeting our fiduciary responsibilities. We use our funds to benefit our members and the specialty of cerebrovascular surgery by contributing to the AANS/CNS Washington Committee, funding research awards and fellowships and sponsoring numerous other activities. If we do not keep our financial house in order we will no longer have the wherewithal to accomplish these tasks. I will not let this happen.

Strengthening our ties with the ASITN is another issue of paramount importance to our organization. Neither the SCVS nor the ASITN could have accomplished alone what we have been able to accomplish together over the last five years. This mutually rewarding relationship should be fostered to assure that the progress

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Cerebrovascular Section Highlights at the AANS Annual Meeting in Chicago

The AANS/CNS Section on Cerebrovascular Surgery will sponsor a scientific session at the AANS Annual Meeting on Tuesday, April 9, 2002, from 2:45 to 5:30 p.m. The afternoon will start off with seven selected abstract presentations. Steven Giannotta, MD, will follow, presenting the Donaghy Lecture entitled "Cerebrovascular Surgical Skills: Learning Them, Teaching Them." The afternoon will culminate with the SCVS Special Symposium on Unruptured Intracranial Aneurysms. Presentations by Hunt Batjer, MD, David Peipgras, MD, and Robert Harbaugh, MD, and three brief case presentations should provide a stimulating overview of the controversial aspects of managing patients with unruptured aneurysms. In addition, there will be numerous practical clinics and breakfast seminars pertinent to cerebrovascular practice. *–Hal Pikus, MD, liaison to the Scientific Program of the AANS 2002 Annual Meeting*

Section Session: AANS/CNS Section on Cerebrovascular Surgery

SCIENTIFIC SESSION **2:45–4:00 PM**

Moderators: H. Hunt Batjer, MD, and Robert E. Harbaugh, MD

801 Carotid Endarterectomy: Short- and Long-Term Re-Stenosis in Patched Versus Non-Patched Patients
Steven C. Zielinski, Steven D. Chang, Gary K. Steinberg

802 Genome Wide Linkage and Haplotype Association Studies Map Intracranial Aneurysm to Chromosome 7q11
Hideaki Onda, Hidetoshi Kasuya, Taku Yoneyama, Kintomo Takakura, Tomokatsu Hori

803 Serum MCP-1 Is Elevated in Association With Poor Outcome Following Aneurysmal Subarachnoid Hemorrhage
Alan Lozier, Grace H. Kim, Josh Yorgason, Ilya Laufer, Alexander L. Coon, J. Mocco, Chris J. Winfree, Kurt Kreiter, Stephan A. Mayer, E. S. Connolly

804 Extra-Cranial Carotid Artery Angioplasty and Stenting: The Cleveland Clinic Endovascular Neurosurgery Experience
Peter A. Rasmussen, John Perl, II, Sue Buehner, Lori Mertz, Marc R. Mayberg, Thomas J. Masaryk

805 Risk Factors for Carotid Re-Stenosis Following Carotid Endarterectomy: The Role of Advancing Age and Hypercholesterolemia.
Vallabh Janardhan, Robert Friedlander, Philip E. Stieg

806 Trends in Morbidity and Mortality Associated with Hospitalization for Ruptured and Unruptured Intracranial Aneurysms in the United States
Adnan I. Qureshi, M. Fareed K. Suri, L. Nelson Hopkins, North American Trial of Unruptured and Ruptured Aneurysms Planning Committee

807 Natural History of Basal Ganglia and Thalamus Arteriovenous Malformations
Ian G. Fleetwood, Michael P. Marks, Richard P. Levy, Mary L. Marcellus, Huy M. Do, Steven D. Chang, John R. Adler, Gary K. Steinberg

Donaghy Lecture and Award Presentation **4:00-4:30 PM**
"Cerebrovascular Surgical Skills: Learning Them, Teaching Them"
Steven L. Giannota

Special Symposium **4:30-5:30 PM**

AANS/CNS Section on Cerebrovascular Surgery Business Meeting **5:30-6:00 PM**

For up-to-the-minute program updates or to download the complete Annual Meeting schedule onto your Palm OS, go to www.neurosurgery.org/aans/meetings/2002

Authors of Outstanding Posters Honored

The Outstanding Poster Awards were presented to the following authors during the 2002 Joint Annual Meeting of the AANS/CNS Section on Cerebrovascular Surgery and American Society of Interventional and Therapeutic Neuroradiology held in Dallas, Texas, Feb. 3-6.

Outstanding Cerebrovascular Poster
"Peripheral PICA Aneurysms—Clinical Features and Management"
Stephen N. Lewis, MD, MBBS, FRACS
University of Florida

Outstanding Endovascular Poster
"Risk of Endovascular Coil Infection in Patients With Cerebral Aneurysms Treated by Guglielmi Detachable Coils"
Michelle L. Lotto, MD
Cleveland, OH

Outstanding Basic Science Poster
"KRIT1, the CCM1 Protein, Is Involved in Muscle Differentiation"
Murat Gunel, MD
Yale University

Notes From the Editor

By Robert M. Friedlander, MD, MA

Over the past 24 months several topics have been high on the priority rating as they will critically impact our cerebrovascular surgical practice. Clinical trials comparing surgery to endovascular procedures and results from studies evaluating the natural history of unruptured aneurysms are active investigative issues.

Clinical Trials

Clinical trials are either in progress or at the preparative stages evaluating the treatment options of carotid disease and intracranial aneurysms. As featured in the current Chairman's Message, aneurysm trials continue to attract significant controversy. None of the trials that have been proposed for the evaluation for the comparative clip versus coil treatment of aneurysms have to date been funded. This is a topic that we will continue to follow closely, and we will keep you informed.

Natural History of Unruptured Aneurysms

Results of the International Study on Unruptured Intracranial Aneurysms (ISUIA) significantly impacted how we approach patients with unruptured intracranial aneurysms. The initial component of this study was published in the *New England Journal of Medicine* in 1998. Results of the annual rate of aneurysm rupture from this study were surprising, and not consistent with previous studies on the same topic. Given the statistical power of this study, and its publication in the NEJM, it attracted significant publicity. The neurosurgical and neuroradiological community communicated significant concern regarding the results of the study. An excellent set of articles on the topic was published in the January 2002 issue of the *Journal of Neurosurgery.* Results of the prospective component of the study were reported at this year's American Heart Association Stroke Meeting in San Antonio. The data were carefully stratified into size and location. The initial ISUIA study changed the pattern of clinical practice of clinicians evaluating and treating unruptured intracranial aneurysm. Given the severe consequences resulting from aneurysmal rupture, the cerebrovascular community eagerly awaits the publication of the study.

Resterilization of Aneurysm Clips

Another issue that we will be following in an upcoming issue of *Cerebrovascular News* is the question regarding regulations on the use and reuse of aneurysm clips. Controversy exists regarding the policy of using aneurysm clips that have been placed intracranially, but not left in. Should these clips be reused? How about a clip that is opened and closed but not placed in the brain? How about temporary clips? Greg Thompson, MD, and Robert Harbaugh, MD, have been critically evaluating this issue and will likely have a report in the next issue of the newsletter.

The Cerebrovascular Section's meeting in Dallas was a great success. I look forward to the excellent program at the AANS meeting in Chicago.

Letters to the Editor

One of the main purposes of *Cerebrovascular News* is to promote communication among section members. Your insights, questions, and comments increase the section's value for everyone. Please send your input to Robert M. Friedlander, MD, MA, editor, *Cerebrovascular News,* at rfriedlander@rics.bwh.harvard.edu, or by fax to (617) 734-8342.

Chairman's Message (continued from front page)

continues. With this goal in mind, the officers of the SCVS and the ASITN met recently in Dallas and agreed to form a joint council to discuss issues of importance to both groups. This is a very exciting and important development that we believe will benefit both vascular neurosurgeons and interventional neuroradiologists. Future newsletters will keep you apprised of the deliberations of this group.

The SCVS and ASITN are also reaching out to our colleagues in stroke neurology, neurological critical care and neuroanestheiology. Representatives from these disciplines have been invited to our Executive Council deliberations and to participate in program planning for the annual joint meeting of the SCVS and ASITN. We hope to forge an alliance among all physicians and surgeons involved in the treatment of patients with cerebrovascular disease.

The SCVS continues to work closely with other neurosurgical organizations to advance the treatment of patients with cerebrovascular disease and to represent the interests of our members. We are collaborating with the Society of Neurological Surgeons to evaluate fellowships in vascular neurosurgery and with the American Board of Neurological Surgery on recertification and maintenance of competence issues for cerebrovascular neurosurgeons. We continue to serve as the organization responsible for advising the Board of Directors of the AANS and the Executive Committee of the CNS on issues relating to the specialty of vascular neurosurgery.

I believe that a brief word about our next annual meeting is in order. The Sixth Annual Meeting of the SCVS and ASITN will be held in February 2003 in Phoenix. Greg Thompson, MD, is the Annual Meeting chairman and Hal Pikus, MD, is the Scientific Program chairman. Please get in touch with them as soon as possible regarding any ideas that you have for the program.

Finally, I would like to end this message on a personal note. I am deeply honored to serve as the chairman of the AANS/CNS Section on Cerebrovascular Surgery. I have had the great good fortune to work with a series of superb SCVS chairmen: Drs. Nick Hopkins, Steve Giannotta, Chris Loftus, Issam Awad and Hunt Batjer. I hope I can live up to their example. Thank you very much for the opportunity.

An Overview of Genetic Linkage Analysis in Stroke: Where We Are and Where We're Going

William J. Mack, MD, Robert J. Dempsey, MD, and E. Sander Connolly, Jr., MD

Genes are said to be "linked" if their loci are in close proximity on the same chromosome and hence inherited together rather than independently into individual gametes. If the chromosomal location of one gene is known, then by inference, the other can be assigned to the same area of that particular chromosome. To carry out "linkage studies" families are examined for both the presence of a particular marker and the phenotypic manifestation of a disease or trait being studied. If the disease and marker loci are on different chromosomes, random assortment must occur. If, by contrast, the two are in close proximity, independent assortment will not occur. They will stay together unless separated by a crossover at meiosis. Harnessing this concept, and using microsattelite markers rather than known genes, investigators have successfully identified a host of monogenic disorders with Mendelian inheritance that are of interest to cerebrovascular surgeons.

With regard to ischemic stroke, several loci have been associated with a variety of prothrombotic states as well as connective tissue disorders, metabolic derangements, and large and small vessel vasculopathies. In some cases the genes at these loci have been identified (protein C, protein S, factor V Leiden, anti-thrombin III, sickle cell, NF1, type III collagen, alpha-galactosidase, tRNA [Leu-UUR] mitochondrial DNA, beta-synthase gene, and the Notch 3 gene), in others only chromosomal regions of interest have been identified (3p24.2-p26 and 17q25; both for familial moyamoya disease).

Perhaps more interesting still to surgeons is the identification of several inherited conditions associated with hemorrhagic stroke syndromes including cerebral amyloid angiopathy, familial cerebral cavernous malformations, hereditary hemorrhagic telangiectasia, and familial venous malformations. In each of these disease entities, the mode of inheritance appears to be autosomal dominant. In addition to these diseases, there are connective tissue diseases associated with a higher than normal incidence of aneurysmal subarachnoid hemorrhage (SAH), such as Marfan's syndrome, Ehlers-Danlos syndrome and polycystic kidney disease.

Despite the association of these diseases with SAH, and the well-founded knowledge that berry aneurysms may run in families in the absence of other significant disease, investigators have been thwarted in their efforts to identify potential susceptibility loci for cerebral aneurysms. Unlike cavernous malformations which usually require treatment only after developing symptoms, the successful identification of unruptured aneurysms through genetic testing not only offers physicians the opportunity to prevent the ravages of SAH, but also to potentially develop relevant animal models which may allow us to better understand the factors which lead to disease progression and rupture instead of repair and stabilization.

To date, the factors that have played the greatest role in precluding successful linkage for cerebral aneurysm formation have

Call for Papers

Neurosurgical Focus, the online, indexed, rapid-publication journal of the American Association of Neurological Surgeons, is announcing a call for papers. The September 2002 issue of *Focus* will feature the "Management of Incidental Intracranial Aneurysms." Topic editor for this issue, Philip E. Stieg, MD, PhD, would like to extend an invitation to submit papers focusing on the management of incidental intracranial aneurysms. The papers could deal with natural history, surgical management, endovascular management, perioperative management, or novel diagnostic and therapeutic interventions and outcomes. The papers will be reviewed by members of the AANS/CNS Section on Cerebrovascular Surgery and selected for publication on the basis of their merit. A robust response on the part of the section's membership is welcomed.

Deadline for submission of manuscripts is July 15, 2002. Instructions to contributors can be found at www.neurosurgery.org/focus/instweb.html.

All manuscripts should be submitted to: John A. Jane, Sr., MD, editor, *Neurosurgical Focus,* 1224 West Main Street, Suite 450B, Charlottesville, VA 22903. Tel: (434) 924-8727; Fax: (434) 982-1396.

Thank You, Sponsors

The AANS/CNS Section on Cerebrovascular Surgery and the American Society of Interventional and Therapeutic Neuroradiology wish to thank the following companies for their generous contributions to the section's 2002 Annual Meeting.

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GE Medical Systems
Micrus Corporation

Genetic Linkage Analysis

Disorder	Chromosome Location	Inheritance	Pathogenesis
Protein C Deficiency	Protein C Gene (2q13-q14)	AD	IS
Protein S Deficiency	Protein S Gene (3p11.1-q11.2)	AD	IS
Factor V Leiden	factor V gene (1q23)	AD	IS
Antithrombin III Deficiency	Antithrombin III Gene (1q23-25)	AD	IS
Sickle Cell Disease	Hemoglobin Beta Chain Gene (11p15.5)	AR	IS
Neurofibromatosis Type I	Neurofibromatosis Type I Disease (17q11.2)	AD	IS
Ehlers-Danlos Syndrome Type IV	Type III Collagen Gene (Chromosome 2)	AD	IS/HS/SAH
Marfan Syndrome	Fibrillin-1 Gene (15q21.1)	AD	IS/HS/SAH
	MFS2 Gene (3p24.2-p25)	AD	IS/HS/SAH
Fabry Disease	Alpha-galactosidase gene (Xq21.3q22)	XR	IS
MELAS	tRNA(Leu)(UUR) gene (Mitochondrial DNA)	AD	IS
Homocysteinuria	Beta Synthase gene (21q22.3)	AR	IS
Hyperhomocysteinemia	5,10-MTHFR Gene (1p36.3)	AD	IS
CADASIL	Notch 3 Gene (19q12)	AD	IS
Familial Hemiplegic Migraine	Familial Hemiplegic Migraine Gene (19p13)	AD	IS
Cerebral Amyloid Angiopathy	APOE Gene	?	HS
Hereditary Cerebral Hemorrhage with Amyloidosis (Dutch Variant)	Amyloid Beta Precursor Protein Gene (21)	AD	HS
Hereditary Cerebral Hemorrhage with Amyloidosis (Icelandic Variant)	Cystatin C Gene	AD	HS
Cerebral Cavernous Malformations (CCM1)	KRIT1 Encoding Gene	AD	HS
Osler-Weber-Rendu Sydrome Type 1	Endoglin Gene (9q)	AD	HS
Osler-Weber-Rendu Sydrome Type 2	Activin Receptor-Like Kinase Gene (12q)	AD	HS
Familial Venous Malformations	Tie-2 Gene (9p)	AD	HS
Intracranial Aneurysms (Onda et al.)	(5q22-31), (7q11), (14q22) Elastin Gene, D7S2472	Multifactorial	SAH
Intracranial Aneurysms (Finnish Study)	(19q13.2), (Chromosome X) Regions on 19: Apolipoprotein E, CII, CI, Cardiac Tropin I, Notch 3	Multifactorial	SAH

Legend

AD= Autosomal Dominant AR= Autosomal Reccesive X= X Linked IS= Ischemic Stroke HS= Hemorrhagic Stroke SAH= Subarachnoid Hemorrhage

been the variable inheritance pattern, the influence of environmental factors (smoking, estrogen replacement), and other genetic diseases (essential hypertension) on disease penetrance. Nonetheless, in the last year several breakthroughs have occurred. First, investigators working with 48 affected siblings from 24 extended Finnish pedigrees have identified regions of interest at 19q13.2, a region known to harbor several genes critical in cardiovascular physiology including apolipoprotein E, and Notch 3. In addition, Onda and colleagues working with 104 affected siblings from 85 Japanese families have identified three regions of interest at 5q22-31, 14q22 and 7q11. The best evidence of linkage was at *d7S2472,* in the vicinity of the elastin gene (ELN). Finally, based in part on the success of the above attempts, and the realization that putative linkages for other diseases have often failed to yield positive results, the National Institute of Neurological Disorders of the National Institutes of Health has recently committed to funding the Familial Intracranial Aneurysm Study. This multi-center international group under the direction of Joseph Broderick, MD, of the University of Cincinnati will recruit 400 sibling pairs over a five-year period and perform a 10 cM genomic screen followed by nonparametric linkage analysis, taking into account relevant environmental factors. Fine mapping of regions of interest will then be performed at multiple sites. The study has 23 referral centers, which will serve to coordinate referrals from local physicians and busy cerebrovascular practices. The referral site nearest you as well as details of the study can be obtained from Dr. Broderick at broderjp@ucmail.uc.edu.

References

Hademenos GJ, Alberts MJ, Awad I, Mayberg M, Shephard T, Jagoda A, Latchaw RE, Todd HW, Viste K, Starke R, Girgus J, Walker M, Marler J, Hart N. Advances in the Genetics of Cerebrovascular Disease and Stroke. *Neurology.* 2001; 56: 997-1008.

Altmuller J, Palmer LJ, Fischer G, Scherb H, Wjst M. Genomewide Scans of Complex Human Diseases: True Linkage is Hard to Find. *Am. J. Hum. Genet.* 2001; 69: 936-950.

Onda H, Kasuya H, Yoneyama T, Takakura K, Hori T, Takeda J, Nakajima T, Inoue I. Genomewide-Linkage and Haplotype-Association Studies Map Intracranial Aneurysm to Chromosome 7q11. *Am. J. Hum. Genet.* 2001; 69: 804-819.

Weatherall, DJ (ed.) (1991). *The New Genetics and Clinical Practice.* Oxford University Press, New York.

What Would You Do? Results and Expert Opinions

By Malini Narayan, MD, MS; Robert M. Friedlander, MD, MA

Results to the case presented in the Winter 2001-2002 issue of Cerebrovascular News.

The Case

You are consulted to see a man who presents with two episodes of transient left hemiparesis. He does not complain of headache or other symptoms. Past medical history is remarkable for hypertension that is well controlled with medications. He smokes two packs of cigarettes per day. Presently, he is neurologically normal. His MRI, including diffusion weighed images, is normal. The angiogram reveals evidence of a spontaneous right vertebral dissection, with a resultant stenosis at the vertebrobasilar junction, and an associated aneurysmal dilatation at the origin of the basilar artery. The left vertebrobasilar junction is normal. In addition, balloon test occlusion of the right vertebral did not result in any neurological deficits. What would you do if he were 20, 40, 60, or 80 years old?

The Results

The table summarizes the responses to this case from the Winter 2001-2002 issue of *Cerebrovascular News*. At times each neurosurgeon chose more than one treatment (e.g. angioplasty/stenting and antiplatelet treatment, or anticoagulation and follow-up imaging), leading to more responses than respondents. Percentages were derived from a particular response divided by the total number of responses within an age group.

Angioplasty and stenting was the most common treatment chosen for the 20- and 40-year age groups. Noninterventional treatments were the most common treatments chosen for the 60- and 80-year age groups.

Antiplatelet and anticoagulation were common treatments chosen for all age groups. For the 20- and 40-year age group, antiplatelet and anticoagulation were most often suggested following an intervention. For the 60- and 80-year age groups, antiplatelet and anticoagulation were suggested more often as sole treatments.

Age	20	40	60	80
No follow-up needed				20.5
Follow symptoms	5.7	8.6	23.5	20.5
Imaging at set intervals	5.7	5.7	8.8	11.7
Antiplatelet agents	25.7	25.7	26.4	35.2
without intervention	8.6	8.6	20.5	35.2
with intervention	17.1	17.1	5.9	0
Anticoagulation	22.8	22.8	20.5	11.7
without intervention	8.6	8.6	17.5	11.7
with intervention	14.2	14.2	3	0
Endovascular Proximal Occlusion	2.8	2.8	5.9	0
Angioplasty and stenting	34.2	28.5	11.7	0
Surgical open occlusion	0	0	0	0
Surgical reconstruction	2.8	2.8	2.9	0
Bypass	0	0	0	0

Figures represent percentages of responses. There were more responses than respondents because in some instances more than one treatment was chosen. Percentages were derived from a particular response divided by the total number of responses within an age group.

Expert Opinions

The case presented here is truly an interesting diagnostic dilemma of a gentleman who presents with two episodes of left transient hemiparesis. The radiologic information provided with the history suggests a focal narrowing of the distal right vertebral artery just proximal to the vertebrobasilar junction. Additionally, there may be some focal narrowing at the proximal portion of the basilar artery, or this may be flow artifact generated by the contralateral vertebral artery. Before considering treatment of a patient with these radiological findings, it is imperative that two questions be addressed:

1. What is the etiology of this patient's symptoms?
2. What does the focal narrowing at the terminal portion of the right vertebral artery represent?

To answer the first question, more diagnostic information is required. Right anterior circulation ischemia more commonly results in isolated left transient hemiparesis than does ischemia or disease of the posterior intracranial circulation. Typically, severe vertigo or other vertebrobasilar symptoms accompany hemiparesis caused by posterior circulation vascular diseases. Therefore, Doppler ultrasonography followed by a conventional angiogram (the gold standard) of the cervical and intracranial carotid circulation is needed to rule out atherosclerotic disease in either the internal carotid or middle cerebral artery distribution. Should a stenosis be found in the right anterior circulation, medical therapy versus surgical or endovascular intervention would be recommended on the basis of lesion morphology and location.

Additionally, angiography of the posterior circulation may resolve the etiology of the questionable narrowing at the origin of the basilar artery (flow artifact versus stenosis) and allow us to gain information about the vertebral artery origins. When performing the angiogram, in addition to looking for other lesions, the second objective is to decipher the etiology of the focal vertebral artery narrowing. Such focal narrowing could represent a dissection (although this is not the typical location for vertebral artery dissections), a congenital hypoplastic segment, or atherosclerotic disease.

Should angiography fail to demonstrate stenosis of the cervical and/or intracranial circulation, further diagnostic testing involving an echocardiogram is recommended. Lesions such as unstable aortic plaques and intracardiac thrombi (with or without a patent foramen

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Fifth Joint Annual Meeting Enjoys Success

By Robert M. Friedlander, MD, MA

The fifth joint annual meeting of the AANS/CNS Section on Cerebrovascular Surgery and the American Society of Interventional and Therapeutic Neuroradiology was held in Dallas, Texas, from February 3 to 6, 2002. Annual meeting Co-Chairmen Robert Rosenwasser, MD, and Randall Higashida, MD, together with the annual meeting committee—Gregory Thompson, MD, Harold Pikus, MD, Frank Culicchia, MD, and Marc Mayberg, MD—planned an excellent meeting. "Compassionate Aggression," the keywords used by CV Section Chairman Hunt Batjer, MD, as he gave his presidential address, certainly marked the feelings among neurovascular surgeons.

The meeting started on Sunday with well-attended special courses on extracranial and intracranial vascular reconstruction, critical care, intracranial angioplasty/stenting and endovascular management of aneurysms. The first scientific symposium on Monday, moderated by Christopher Loftus, MD, and Thomas Tomsick, MD, was on cerebral revascularization options, both open surgical and endovascular. While Richard Latchaw, MD, discussed imaging in cerebral ischemia, Howard Yonas, MD, summarized state of the art technology for defining candidates for cerebral revascularization. Surgical options were presented by Neil Martin, MD, while Randall Higashida, MD, discussed the endovascular approach. Finally, Fernando Diaz, MD, talked about a study aimed at defining the role of an EC-IC bypass study. The afternoon session included topics on current controversies in the management of arteriovenous malformations with presentations by Philip Stieg, MD, Alex Berenstein, MD, Dr. Batjer, Robert Willinsky, MD, David Andrews, MD, and Robert Harbaugh, MD. The day concluded with presentations by 2001 Bayer award recipients Peter Rasmussen, MD, and Bob Carter, MD. J. Paul Elliot, MD, and Robert Mericle, MD, were the new 2002 awardees; we look forward to their presentations next year.

Tuesday's scientific program started with the special symposium on ischemic and hemorrhagic stroke. This comprehensive session included presentations ranging from current basic scientific understanding of atherosclerosis, presented by Adel Malek, MD, to medical (by Thomas Brott, MD), thrombolytic (by Warren Selman, MD) and surgical management of ischemic stroke (Christopher Ogilvy, MD). Hemorrhagic stroke was discussed by Joseph Zabramski, MD, and Leo Hopkins, MD, presented future treatment options. Other scientific symposia included one on aneurysmal subarachnoid hemorrhage and another one on unruptured aneurysms. While Jacques Moret discussed the latest advances in endovascular treatment of ruptured aneurysms, Duke Samson, MD, proved that open surgery remains a highly effective treatment modality with which any new treatment has to be compared. Other presentations included intraoperative adjuncts by Dr. Loftus, vasospasm by Dr. Rosenwasser, and neurovascular ICU by Daryl Gress, MD. David Piepgras, MD, Issam Awad, MD, Ajay Wakhloo, MD, and S. Claiborne Johnston, MD, discussed the topic of unruptured aneurysms, an area that remains controversial.

Overall, there were 20 luncheon seminars, 100 oral presentations and nearly 200 poster presentations spanning all aspects of cerebrovascular surgery and interventional neuroradiology, marking the scope our rich field. We now look forward to our next joint meeting: Feb. 16-19, 2003, in Phoenix, Ariz.

What Would You Do? Results *(continued from page 6)*

ovale) may result in emboli to the intracranial circulation, leading to symptoms such as those experienced by the patient. We would most likely perform these diagnostic tests in addition to a cerebral blood flow study before performing a balloon test occlusion (which is of questionable benefit in this setting).

With respect to age-related considerations, we would be reluctant to attribute this lesion to atherosclerosis in a patient younger than 40 years in most situations. Assuming the patient was 20 years old and our diagnostic work-up revealed no other likely source for the patient's symptoms, we would attempt to clarify whether this lesion was a congenital hypoplastic segment versus a traumatic dissection. Should this lesion be felt to have resulted from a dissection, endovascular treatment with a stent would be reasonable.

In a patient 40, 60, or 80 years old with no other lesions noted during the work-up and no history of trauma, the vertebral artery lesion most likely represents an atherosclerotic plaque. In the setting of a normal left vertebral artery, the symptoms would be attributed to emboli from an unstable plaque. A cerebral blood flow study would help clarify whether symptoms were due to hypoperfusion. Assuming the symptoms were indeed of embolic origin, we therefore would attempt a trial of medical therapy involving clopidogrel (75 mg once daily for 30 days), aspirin (325 mg daily, indefinitely), and an HMG-Coa reductase inhibitor (as there have been studies suggesting plaque reduction and arrest of progression in patients taking lipid-lowering agents). Surgical revascularization in the setting of a normal left vertebral artery and symptoms related to emboli is not indicated. Should symptoms persist despite the aforementioned medical regimen, we would consider angioplasty-assisted stenting of the distal vertebral artery stenosis and the vertebrobasilar junction.

—Elad I. Levy, MD, Alan S. Boulos, MD, Bernard R. Bendok, MD, and L. Nelson Hopkins, MD
Buffalo, N.Y.

The 3D catheter angiogram demonstrates two stenotic regions framing a left wall irregular contrast collection opposite to a mural contour convexity in the vicinity of the vertebrobasilar junction. The appearance suggests a dissecting aneurysm, although there is a remote possibility of a complex atherosclerotic lesion demonstrating a similar appearance. This distinction is of fundamental importance, due to

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the concern of disparate natural histories in these patients when anticoagulated or placed on antiplatelet therapy.

When considering the patient's presenting clinical syndrome, it is difficult to exclude a causative microembolus generated from the dissecting intracranial aneurysm. If anticoagulation is to be seriously considered as a long-term therapeutic option, it needs to be balanced by some level of concern regarding the numerous case reports in pediatric and adult populations describing a remarkably high rate of fatalities in patients who present with dissecting intracranial aneurysms and subarachnoid hemorrhage (SAH). Even though this patient has no evidence to support prior SAH to justify categorization in this cohort, there is unfortunately little information in regard to the documented long-term natural history of intracranial aneurysmal dissection. Therefore, we are left with two untidy categories in which to consider this patient: an intracranial dissecting aneurysm which has not bled; and a rheologic/mural substrate that has presumably allowed distal embolization on at least two separate occasions, with the potential for a more significant future event.

The option of dissecting aneurysm sack coiling with parent vessel preservation does not appear to be an option, as it is belied by the lack of a suitable coil-containing intimal flap. Assuming the risk of long-term anticoagulation has been deemed unacceptable, Hunterian "occlusion" may be the next conservative option in this patient as explained by the passed test occlusion, especially if the test occlusion was performed in concert with pressure challenge and quantitative imaging, and the permanent occlusion could be easily addressed with detachable balloon placement below the level of the PICA. The need for meticulous test occlusion cannot be overemphasized. Reported false-negative test occlusion rates have been as high as one in four patients, not to mention the often false sense of safety distal to the permanently occluded vessel which has been best described with fusiform aneurysms.

Just as extracranial stents have served to coapt delaminations in vessel walls elsewhere in the body, as described in case reports, similarly there is a potential role for intracranial stenting in patients with intracranial dissections. This role must be considered in the light of an obviously weakened wall which has lost its normal integrity, raising the risk of catastrophic vessel rupture in an individual who may be at increased risk for further delaminations by dint of "weak" vessels in the access pathway, with the existing limitations of poor flexibility and suboptimal "edge" characteristics of the appropriately sized coronary stents which may be considered for such an application. Therefore, conspicuous irregularities of the approach pathway would serve to diminish the chance for successfully placing the stent. Such an option may seem less reasonable in an 80-year-old patient with comorbidities than in a younger and healthier patient.

In our practice we increasingly have grown to depend on stent-assisted endovascular reconstruction of the craniocerebral vasculature. This dependency has grown from the versatile nature of this technology, where it can be applied to not only delamination states such as dissecting aneurysms and intracranial dissections, but also to flow-restricting states such as high-grade fixed stenoses, and to endovascular reconstruction of dysplastic vessels such as fusiform aneurysms and broad-necked aneurysms in adjunct therapy. Nevertheless, this enthusiasm must be controlled by an understanding of the lack of historical information regarding the variety of potential treatment arms, the inherent technical limitations of the tool, and the high cost of occasionally fatal or debilitating complications.

—Alexander Norbash, MD
Boston, Mass.

Bayer Research Grants Offered

Description: Two $25,000 grants are available for original research in cerebral ischemia, cerebral protection, neuronal recovery or outcomes.

Eligibility: Limited to physicians in the U.S. and Canadian institutions who have completed formal neurosurgical training and have been in academic staff positions for no longer than four years by the time of fellowship activation (July of each year).

Sponsor: AANS/CNS Section on Cerebrovascular Surgery and Bayer Corporation, Pharmaceutical Division.

Deadline: May 1, 2002

Contact: Bayer Fellowship Coordinator
Bruce Leeb & Company
Phone (201) 703-6100 • Fax (201) 703-6101
E-mail: info@blc1.com

2002 AANS Education and Practice Management Course Schedule

Beyond Residency: The Real World
October 26, 2002 — Chicago, Illiniois

Innovations in Spinal Fixation: An Advanced Course
July 27-28, 2002 — Memphis, Tennessee

Managing Coding & Reimbursement Challenges in Neurosurgery
May 10-11, 2002 — Anaheim, California
August 23-24, 2002 — Boston, Massachusetts
September 6-7, 2002 — Chicago, Illinois
November 15-16, 2002 — Washington, D.C.

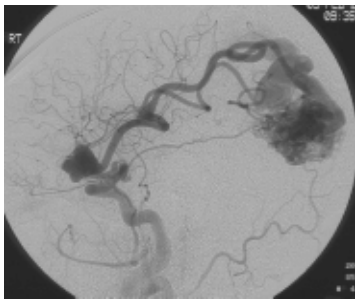
Neurosurgical Practice Management: Managing Your Practice by the Numbers
May 12, 2002 — Anaheim, California

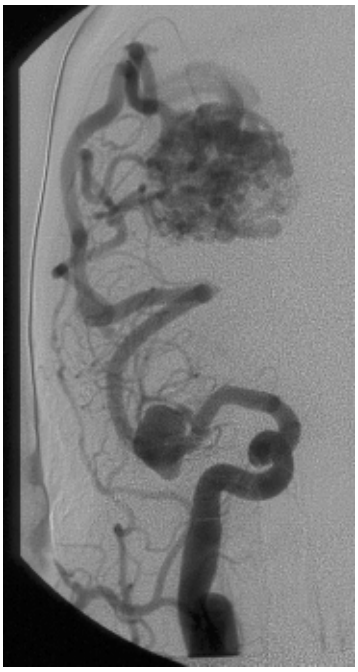
Neurosurgical Review by Case Management: Oral Board Preparation
May 26-28, 2002 — Hartford, Connecticut
November 10-12, 2002 — Houston, Texas

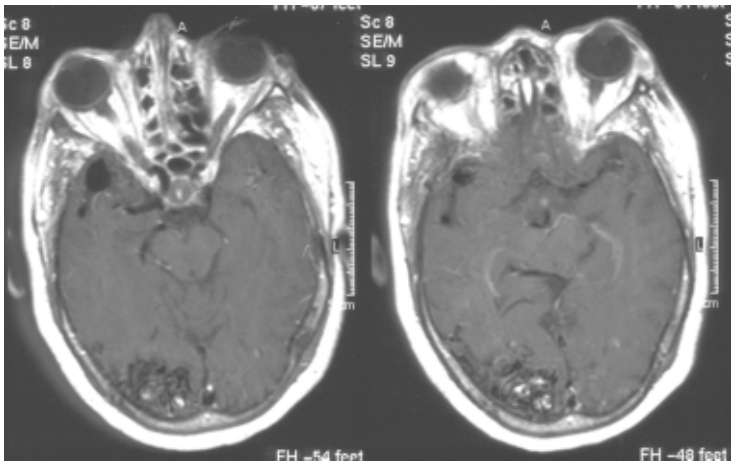
For more information or to register, call (888) 566-AANS or visit www.neurosurgery.org/aans/meetings/epm/epmcourses.html.

What Would You Do?

A patient is referred to see you after enrolling as a volunteer for a brain MRI. The study revealed an occipital AVM. An angiogram was obtained demonstrating a 3 cm right occipital AVM with a feeding multilobulated MCA aneurysmal dilatation. There is no evidence of venous outflow compromise or intranidal aneurysms. She has a long history of smoking and occasional headaches. She is otherwise healthy. What would you recommend?







Please describe the sequence of events that you would recommend at the following ages:

Age	20	40	60	80
1) No follow-up needed.				
2) Angiogram at set intervals.				
3) MRI at set intervals.				
4) Treat the aneurysm before treating the AVM. a) Clip/wrap b) Bypass c) Coil embolize				
5) Embolize the AVM *(assume that it is not completely embolized)*.				
6) Operate on the AVM.				
7) Operate on the aneurysm at the same time as the AVM is treated.				
8) Radiosurgery.				
9) Delayed angiogram.				

e-mail to rfriedlander@rics.bwh.harvard.edu • fax to (617) 734-8342

Moved? New E-Mail? Notify AANS, CNS and ABNS of changes to your contact information online. Go to www.neurosurgery.org/directory, enter your name, click the "update your listing" button, and follow the instructions to quickly and easily update your listing for all three organizations at once.

Application for Membership

AANS/CNS Section on Cerebrovascular Surgery

I. Biographical Material

Name: _____

Home Address: _____

Office Address: _____

Business Phone: _____ Fax: _____

E-mail Address: _____

II. Category of Membership Requested

❑ Active ❑ Candidate ❑ International ❑ Adjunct/Corresponding

III. Formal Neurosurgical Training

Name/location of training program: _____

Date of completion or expected date of completion: _____ / _____

Date of American Board of Neurological Surgery certification: _____ / _____

Date of fellowship in Royal College of Surgeons (Neurosurgery) of Canada: _____ / _____

Are you a member of:

American Association of Neurological Surgeons? ❑ Yes ❑ No

Congress of Neurological Surgeons? ❑ Yes ❑ No

IV. References

Please provide letters of reference from two members of the AANS/CNS Section on Cerebrovascular Surgery highlighting your activity/involvement in cerebrovascular surgery. Indicate below (name and address) from those whom these references will be received: **International applicants should contact the AANS for further instructions at info@aans.org.*

1) _____

2) _____

V. Curriculum Vitae

Please enclose a current Curriculum Vitae with your completed application. Describe your current interest and activities in cerebrovascular surgery (unless clearly evident in your Curriculum Vitae).

_____

_____

_____

VI. Membership Fee(s)

Please enclose a check in the amount of $75 made payable to the AANS/CNS Section on Cerebrovascular Surgery. If you are applying for International membership and you are not a member of the AANS or CNS, please submit a separate check in the amount of $35 made payable to the CNS.

Once your required materials are received, your application will be reviewed by the Membership Committee and forwarded to the Executive Committee for consideration and approval before final voting/approval by members of the Section.

Signature of Applicant: _____ Date: _____

Please return the completed application with your membership fee of $75 made payable to:

AANS/CNS Section on Cerebroscular Surgery
c/o Frank Culicchia, MD
Culicchia Neurological Clinic
Suite S-750
1111 Medical Center Blvd.
Marrero, LA 70072

Nominees Announced

The AANS/CNS Section on Cerebrovascular Surgery wishes to announce the slate of nominees for officer and member-at-large positions on the section's Executive Council:

Warren Selman MD—Chairman-Elect
Robert Rosenwasser, MD—Treasurer
Joel MacDonald, MD—Member-at-Large, Executive Council

Applicants for Section Membership:

Bonilla Sanchez Alfredo, MD
Kaveh Barami, MD
Bernard Bendok, MD
Pragnesh Bhatt, MD
Charles W. Kerber, MD
J. Paul Elliot, MD
Juan J. Fernandez, MD
Wesley Fowler, MD
Jose Manuel Galindo, MD
Guillermo Gonzalez, MD
Arthur A. Grigorian, MD
Mark R. Harrigan, MD
Salvador Juarez, MD
Jurgen Kiwit, MD
James McInerney, MD
John McMahon, MD
Antonio Z. Mendez, MD
Robert Mericle, MD
Alfredo Messina, MD
Dante Mario Morant, MD
Raul Neri-Alonso, MD
Roberto Pichardo, MD
Gabriel Portillo, MD
Jaime T. Reyes, MD
Jakko K. Rinne, MD
Ian Ross, MD
Jayashree Srinivasan, MD
Yoshiro Takaoka, MD
Christopher Taylor, MD
Cosme M. Vazquez, MD
Florentino Vazquez, MD
John Wanebo, MD
Marjorie C. Wang, MD
Michael West, MD
Jonathan A. White, MD
Yoshihiro Yamamoto, MD
G. Edward Yates, MD

AANS/CNS Section on Cerebrovascular Surgery Membership Recruitment

The purpose of the AANS/CNS Section on Cerebrovascular Surgery is to advance education, research, and patient care in the area of cerebrovascular disease. Through its activities and educational programs, the Cerebrovascular Section strives to promote awareness among all neurosurgeons of opportunities for clinical practice and research in the area of cerebrovascular surgery to improve and advance patient care.

The section's leadership has established relationships with other specialties involved in the management cerebrovascular disease to provide a broad focus in advancing cerebrovascular surgery. This is most evident at the annual meeting of the CV Section. Held in conjunction with the American Society of Interventional and Therapeutic Neuroradiology, the annual meeting focuses upon discussions, presentations, and practical courses of the most advanced methods of treatment, as well as those under development in the specialty of cerebrovascular surgery. Involvement of critical care, cerebrovascular anesthesiology and cerebrovascular neurology brings together an integrated team at our annual meeting, truly advancing education and stimulating research.

Membership allows for discounted registration to the annual meeting, a quarterly newsletter, and e-mail updates on developments within the field of cerebrovascular surgery. The success and the strength of the AANS/CNS Section on Cerebrovascular Surgery to improve care to our patients lies within its membership. Browse the Cerebrovascular Section's Web page www.neurosurgery.org/cv. Download an application www.neurosurgery.org/cv/cvapp.pdf or use the application in this newsletter to become a member.

Frank Culicchia, MD
Membership Chairman

AANS/CNS Section on Cerebrovascular Surgery
5550 Meadowbrook Drive
Rolling Meadows, Illinois 60008-3852

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Chicago, Illinois

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Lebanon, N.H.

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Newsletter Mission Statement

The newsletter is distributed to all members of the AANS/CNS Section on Cerebrovascular Surgery. The purposes of the newsletter are to:

1. Promote communication among Section members.
2. Promote communication among the Section's Executive Council and the members.
3. Promote coordinated activities and a common purpose within the Section.
4. Inform the membership of research, educational, and employment opportunities.
5. Inform the membership of new technical developments in the treatment of cerebrovascular disease.
6. Promote research, patient care, and educational activities of the Section.