The MGH Stereotactic and Functional Neurosurgery Center continues to expand. Functional neurosurgery is one of the most rapidly growing areas of neurosurgery both at MGH and across the Nation and the Center has been an important part of this growth. The success of the center depends upon close cooperation between the department of Neurosurgery and the departments of Neurology and Psychiatry. There are regular multidisciplinary meetings for each of the main parts of the program – epilepsy, movement disorders, and psychiatric neurosurgery. These meetings are critical for the program to remain on the cutting edge of science and for ensuring the best possible patient care.

There is a weekly epilepsy conference during which cases are presented and the management strategies are discussed. Many of these cases are complex and require invasive monitoring for seizure localization. Over the past year we have introduced a number of new minimally-invasive technologies for localization. One such approach is the use of foramen-oval electrodes to localize temporal lobe seizures. This is a much less invasive approach than depth electrodes, and can be very helpful in select cases. Another innovation has been the use of frameless stereotactic guidance combined with PET or SPECT scans to optimize resections.

The Center is also quite active in Deep Brain Stimulation (DBS) for movement disorders. We have a biweekly movement disorders conference where we review new patients. We continue to treat patients with Parkinson’s Disease and Essential Tremor using DBS. In addition, we have been treating an

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Over the past few years there have been significant structural changes in all residency programs including ours in response to ACGME mandates. All of you with teaching positions affiliated with residencies are familiar with these changes. The eighty-hour workweek restriction has required some shifts in resident responsibilities to require our trainees to provide occasional nighttime coverage during the first year of their laboratory rotations. Until recently we had been able to completely protect our residents’ lab time, something that is no longer possible. Nonetheless, we feel that we have minimized the impact of this change on their lab experience. Reflective of this is the fact that our trainees continue to excel in their research efforts.

Ziv Williams has been

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awarded the 2006 AANS/CNS Cloward Fellowship Award, based on his work in Emad Eskandar’s lab on selective enhancement of associative learning by microstimulation of the anterior caudate. Manish Aghi will be honored at the 2006 AANS Annual Meeting with the Mahaley Award as the investigator presenting the best clinical study in neuro-oncology.

The second major structural change in resident training has been to systematize the teaching of the six areas of clinical competency, as defined by the ACGME. As you are all aware, these elements, which embody professionalism, patient care, medical knowledge, practice-based learning, systems-based practice, and interpersonal communication skills have always been an integral part of our program. However, it has been necessary to systematically incorporate these items explicitly into our didactic teaching and trainee evaluation procedures.

The evolutionary trend toward subspecialty teaching continues to require gradual changes in the organization of our residents’ clinical years. This is a happy circumstance, reflecting the ever-increasing volume of work in complex spine, tumors, vascular, radiosurgery, functional, and pediatrics. Our accepting a third trainee every other year will facilitate the process. The first class of three will enter this July.

Our most recent graduate is Khalid Abbed, who is presently the North Attending. In July, he will take position as Spine Fellow at the Cleveland Clinic. Brian Hoh, who finished just before Khalid, is now on the Staff of the University of Florida Gainesville, putting his outstanding talents as a vascular neurosurgeon to good use. We take immense pride in the quality of these two individuals as well as all of our present and former trainees.

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Program Director’s Update cont’d

Symposiums, lecture series

More than 150 participants joined in November for the Fall Carolyn Frye Halloran Symposium on Neuro-Oncology—Stem Cells and Brain Tumors. The two-day event included more than 20 speakers from throughout the US, Canada and Europe.

Dr. Bob S. Carter and Dr. William Curry organized the symposium.

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Researchers at MGH and the Whitehead Institute suspect that normal protein that when malformed causes bovine spongiform encephalopathy and Creutzfeldt-Jakob disease may be needed for healthy brain function.

The Evolution of Endovascular Aneurysm Surgery: From Novelty to Supremacy - John D. Barr, M.D., Baptist Memorial Hospital in Memphis, Tennessee; Cell adhesion molecules, leukocyte-endothelial cell interactions, and nitric oxide in vasospasm after subarachnoid hemorrhage -- Raphael A. Tamargo, M.D. Johns Hopkins University; Endovascular treatment of intracranial aneurysms: Problems, methods, and potential solutions - Jean Raymond, M.D. Centre hospitalier de l'Université de Montréal;

University of Montreal Hospital Centre) Director of the Interventional Neuroradiology Research Laboratory, Professor in the Department of Radiology, Radiation Oncology and Nuclear Medicine at the University of Montreal.

Dr. Jeffrey Macklis of MGH Center for Nervous System Repair and Dr. Susan Lindquist of Whitehead Institute are senior co-authors on a Proceedings of the National Academy of Science Paper which appeared February 13th.

In the Macklis lab, Hande Ozdinler and Jason Emsley investigated the effects PrP might have on neurogenesis, by using three types of mice—knock out mice, those in which the gene was hyper-expressed and a control group.

The researchers isolated neural precursor cells—early stage cells that give rise to mature neurons and so-called glial support cells. (neural stem cells). After placing the embryonic precursor cells under culture conditions, there were striking differences. Cells from the knock-out mice stayed at precursor stage for a long time compared to the control mice, while those where the PrP was over-expressed began forming mature neurons immediately. For more detailed information see “The Prion Protein Has A Good Side? You Bet in Science, Feb 24, 2006.

Lecturer was James T. Rutka, MD, PhD Division of Neurosurgery The Hospital for Sick Children, The University of Toronto who spoke on Medullolastoma: A quest for novel therapeutic targets.

Dr. Charles Douglas Blaha gave the 2005 William H. Sweet lecture: Mapping midbrain modulation or motivation. He is an Associate Professor in the Department of Psychology, University of Memphis.

The Balkin Family

Mad Cow Disease and Neurosurgery?

Dr. Christopher Ogilvy organized the 2005-6 Neuroscience Series, focusing on neurovascular surgery and disease.

Speakers and presentations were

The Carolynn Frye Hiltaran Symposium on Neuro-Oncology November 17-18, 2005

Stem Cells AND Brain Tumors

The Evolution of Endovascular Aneurysm Surgery: From Novelty to Supremacy - John D. Barr, M.D., Baptist Memorial Hospital in Memphis, Tennessee; Cell adhesion molecules, leukocyte-endothelial cell interactions, and nitric oxide in vasospasm after subarachnoid hemorrhage -- Raphael A. Tamargo, M.D. Johns Hopkins University; Endovascular treatment of intracranial aneurysms: Problems, methods, and potential solutions - Jean Raymond, M.D. Centre hospitalier de l'Université de Montréal;
Alumni Gather at MGH for tour, reception

The October Neurosurgery Alumni Reception held at the MGH was a great success. Alumni met at the Ether Dome for a group photograph before leaving in groups to tour the Neuro ICU, laboratories and old MGH haunts before reconvening at the new Richard Simches Research Building which houses the Neurosurgery Brain Tumor Research Center.
Alumni News

Neurosurgery alumni gathered for a group photograph in the Ether Dome.

Jean and Robert Ojemann chat with Scott Connor

Bothwell Lee talks with MGH resident Christopher Farrell

Jill and Robert Martuza, pose with Charlotte and Yong-Kwang Tu.

Adelbert Ames catches up with Elizabeth Sweet

John Yu is surrounded by MGH residents Manish Aghi, Ziv Williams and Ramin Amirnovin
Dr. Zervas offering me a position in the neurosurgical residency program when I was a surgical intern at MGH. Giving grand rounds as Chief Resident in the Ether Dome. -- Dr. Debra A. Petrucci, Chief of Neurosurgery, White Plains Hospital.

Clipping my first aneurysm as East Senior with Dr. Ogilvy—then watching Titanic later that evening! Gross total removal of CP-Angle meningioma with Dr. Ojemann on my last day as West Senior. -- Dr. Zoher Giogawala, Private Practice Yale University.

I think the memory of what was probably the first craniotomy carried out under hypothermia will always remain with me as the essence of MGH. Take a good idea, mobilize all the resources you can imagine you might need to be successful, gather all the intellectual prowess within reach to make a success of the procedure and then go ahead and attempt the impossible task.....-- Dr. Walter S. Cotter, Retired.

They were all special moments, the privilege of rounding with the giants of neurosurgery and neurology, men of the “Greatest Generation”: Sweet, Adams, Fisher, Ojemann, and Zervas, and of course, operating with surgical masters. The most memorable moment was being asked as a junior resident for the names of a few patients that could be evaluated by a new machine MGH acquired, called the “CAT Scan”. Seeing the incredible impact on patient care, neurosurgery, and neurosciences of brain imaging and what followed — MRI, fMRI, MR Spect, IGS, SRS, etc. Being on the 50-yard-line and witnessing medical history unfolding... that remains magical. — Dr. Stephen Brem, Director, H. Lee Moffitt Cancer Center, Vice-Chair/Moffitt in the Department of Neurosurgery.
increasing number of patients with Dystonia. In many cases, these patients are children or teen-agers. The results can be quite dramatic and are very satisfying for everyone involved.

The Center has a long history in the neurosurgical treatment of intractable Obsessive-Compulsive Disorder and Major Depression. We have monthly meetings to review cases that are attended by psychiatrists, neurologists, and neurosurgeons.

We continue to perform cingulotomies as appropriate. However, over the past year, we have begun evaluating patients for vagal nerve stimulation to treat Major Depression. In addition, we are part of a multicenter trial to evaluate DBS to treat Major Depression.

The Center remains active in publishing both scientific and clinical results. We have published recent paper in *Nature Neuroscience, the Journal of Neuroscience, Neurosurgery, and Stereotactic and Functional Neurosurgery*. In addition, the biennial meeting of the American Society for Stereotactic and Functional Neurosurgery is being Co-Chaired by Dr. Eskandar, and is being held in Boston this year. The Center is also actively involved in community outreach and education through local presentations and seminars held at MGH.

"It’s why I chose functional and stereotactic neurosurgery. It provides an opportunity to make patients dramatically better, people with chronic problems such as trigeminal neuralgia, Parkinson’s disease, and Epilepsy. It’s very elegant, because it combines neurophysiology, neuroscience and neurosurgery. In many ways it represents the future of neurosurgery” said Eskandar.
Update our records....

Please return to: Dept of Neurosurgery, Massachusetts General Hospital, 55 Fruit Street, White 502, Boston, MA 02114

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Tell us about yourself: (Honors, Awards, Research Funding, or enjoying retirement
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