



Medical College of Georgia
Neuroscience Outlook

Department of Neurosurgery Newsletter

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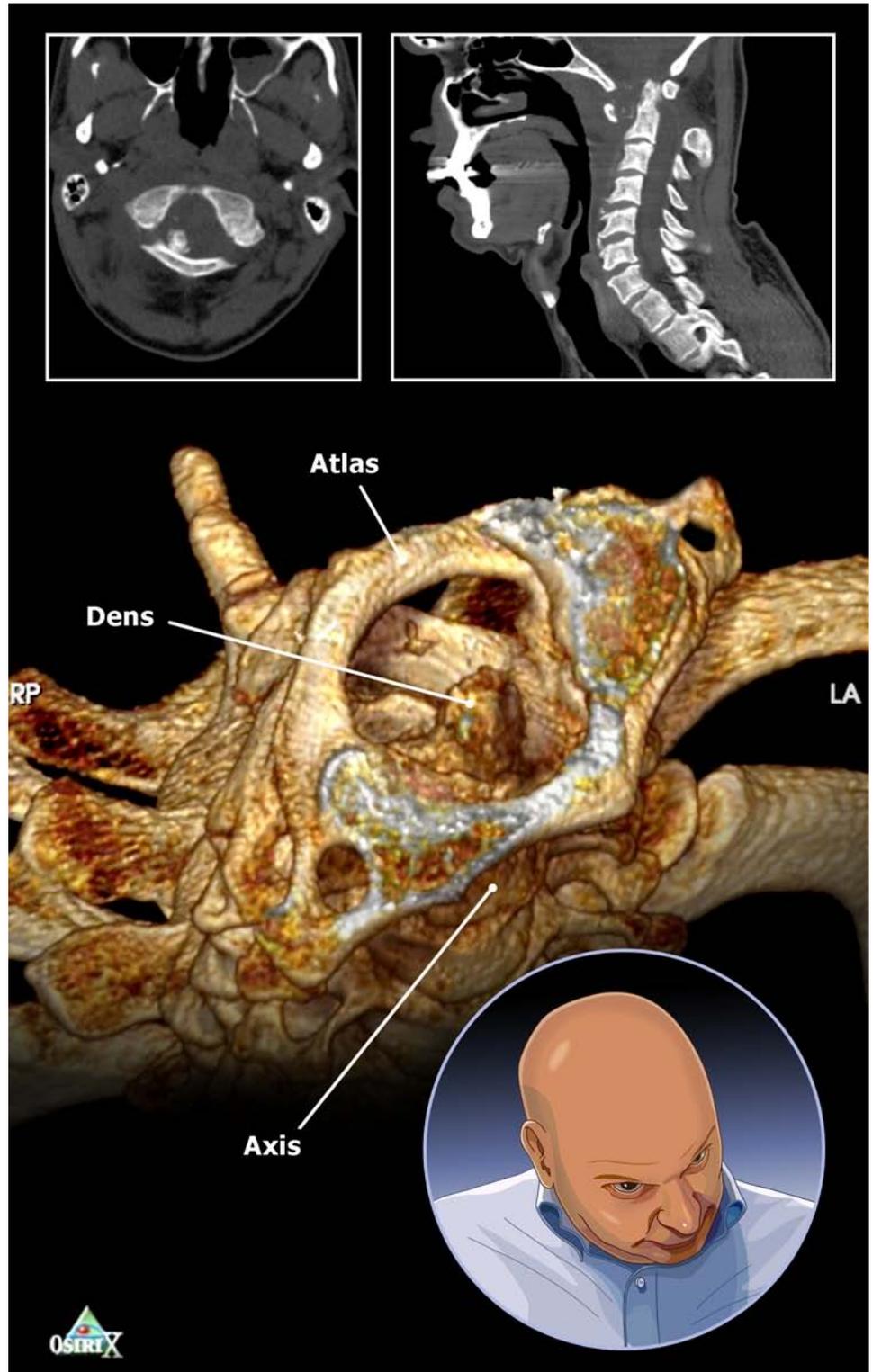
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www.mcg.edu/som/neurosurgery

MCG
Neuroscience Center



Clinical Spotlight: Management of severe atlanto-axial instability

Chair's Message

Welcome to another issue of our departmental newsletter Neuroscience Outlook. We are delighted to welcome our newest recruit, Dr. Cole Giller, who takes the title of Director of Functional and Stereotactic neurosurgery. He will continue to build on the strong foundation that Dr. Joseph Smith, now Emeritus professor, has built in this discipline. In this issue we highlight a recent award that the MCG Life Science Innovation center has received. In the clinical spotlight we present two surgically-treated spine cases. The first illustrates the minimally-invasive treatment of a thoracic fracture and the second, the treatment of a patient with severe atlanto-axial instability. In the spotlight on creativity we reprint a portion of a compelling interview of neurosurgeon Dr. Charles Ray who entered MCG medical school in 1952 and whose accomplish-

ments are truly amazing and inspiring to us all.

As in previous issues, we highlight the accomplishments of our faculty, residents and students, and present our collective academic accomplishments.

Cargill H. Alleyne, Jr., M.D.

Associate Professor and Allen Distinguished Chair

Director, Cerebrovascular Service

Director, Department of Neurosurgery Residency Program



Department News

Transitions



Dr. Cole Giller

We are pleased to welcome Cole Giller, M.D., Ph.D., M.B.A., F.A.C.S. into our department in the rank of Professor. Dr. Giller will serve as the new Director of Functional and Stereotactic Neurosurgery and replaces Dr. Joseph Smith who achieved Emeritus status in 2007. Dr. Giller received his Ph.D. in Mathematics from University of California, Berkeley in 1980 and M.D. from UCLA School of Medicine in 1984. He completed his neurosurgical training at the University of Texas Southwestern

Medical School in 1990 where he stayed on as faculty until 2004. In that year he was recruited to Baylor Radiosurgery Center in Dallas, TX where he established a thriving pediatric and adult stereotactic radiosurgery practice. Dr. Giller has published extensively and has garnered numerous awards throughout his career, including AOA from UCLA School of Medicine in 1983 and inclusion in the Best Doctors in America in 2003-4. He has received NIH grant funding in the past and holds at least one patent. He also obtained an M.B.A. from University of Tennessee in 2006. Dr. Giller's clinical interests will focus on the surgical treatment of epilepsy and movement disorders, and stereotactic radiosurgery. We are delighted to wish Dr. Giller a warm welcome.

MCG's Life Sciences Innovation Center receives award

The Life Science Innovation Center at MCG is one of only 5 centers to receive an award of excellence in the Biotech



industry category from Expansion Solutions magazine. The awards recognize organizations who have demonstrated exceptional progress and potential in recruiting, retaining and growing businesses devoted to the Biotech industry.

The MCG business incubator is the state's only Innovation Center devoted to the life sciences.

For more information about this recognition, please go to:

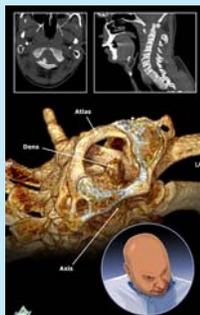
http://www.expansionsolutionsmagazine.com/2008_biotech_awards

<http://lifesciences.georgiainnovation.org/>

<http://www.mcg.edu/incubator/>

Contributor acknowledgement

We thank Dr. Marshall Allen for his kind donation to the department.



This issue's cover illustration reveals the remarkable case of a 42-year-old man who came to MCG Department of Neurosurgery with a spine condition that had been deemed inoperable by other neurosurgeons of other hospitals. See the article, "Management of a case of extreme atlanto-axial instability", by Haroon Choudhri, M.D. on page 4. The Osirix software-based images and illustrations are by Michael Jensen, M.S.

Clinical Spotlight

Case 1: Minimally-invasive thoracic fixation

Presentation

A 30-year-old man was the unrestrained driver involved in a single vehicle collision. He presented to the emergency room with multiple injuries. He complained of mid-thoracic pain and was tender to palpation in this region as well. He had no neurological deficits. X-ray and CAT scan examination demonstrated a T7 chance fracture. MRI showed no cord abnormality or hematoma.

Surgical Management

He was taken to the operating room the next day for percutaneous pedicle screw fixation from T6 to T8. This was an ideal case for percutaneous pedicle screws because there was no need for decompression or placement of a structural graft. There was minimal blood loss. Immediate fixation was achieved allowing the patient to be ambulatory.

**S. Dion Macomson,
M.D.**



Sagittal CT shows Chance fracture at body of T7

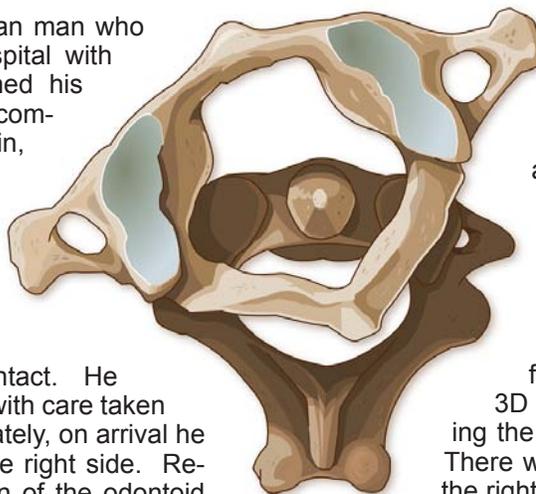


Lateral x-ray of hardware in place

Case 2: Management of a case of severe atlanto-axial instability

Presentation

Patient is a 42-year-old Caucasian man who was admitted to an outside hospital with pneumonia. Since he maintained his neck in an unusual position and complained of 2 months of neck pain, a CT scan was obtained of the cervical spine which revealed severe C1-C2 dislocation. (Figures 1a and 1b - Sagittal and Axial CT reconstruction from pre-MCG source). Remarkably, the patient, who was deaf and mute since birth, was neurologically intact. He was transferred to our institution with care taken to immobilize his neck. Unfortunately, on arrival he was completely hemiplegic on the right side. Repeat CT showed that the position of the odontoid relative to C1 was significantly different. MRI was obtained which showed compression of the cervi-



comedullary junction with significant edema extending rostrally and caudally. Epidural and paraspinous soft tissue swelling was also noted. (Figures 2 and 3 - T2-weighted sagittal MRI from MCG).

On examination, the patient was awake and alert and his neck was fixed in flexion with rotation to the left ('cock robin' deformity). Communication was challenging since the patient was only able to sign with his right upper extremity which was now completely paralyzed. The goals of management were to decompress him, restore his alignment and fuse him in an anatomically neutral position.

3D CT reconstructions were useful in evaluating the nature of the rotary subluxation in this case. There was complete anterior dislocation (jumping) of the right C1-C2 articular complex with retrolisthesis of the left C1-C2 articulation. (Figure 4 - Still image from 3D CT showing C1-C2 subluxation, superior view).

Clinical Spotlight *(continued)*



Figure 1a: Sagittal view, (pre-operative)

Figure 1b: Axial view, (pre-operative)

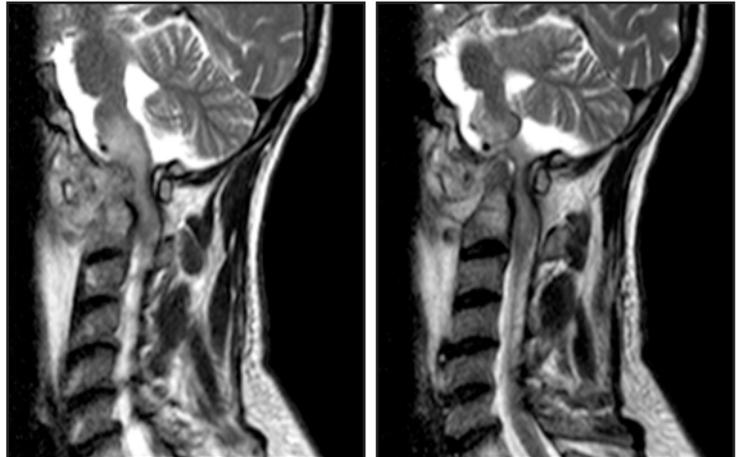


Figure 2: T2-weighted sagittal MRI

Figure 3: T2-weighted sagittal MRI

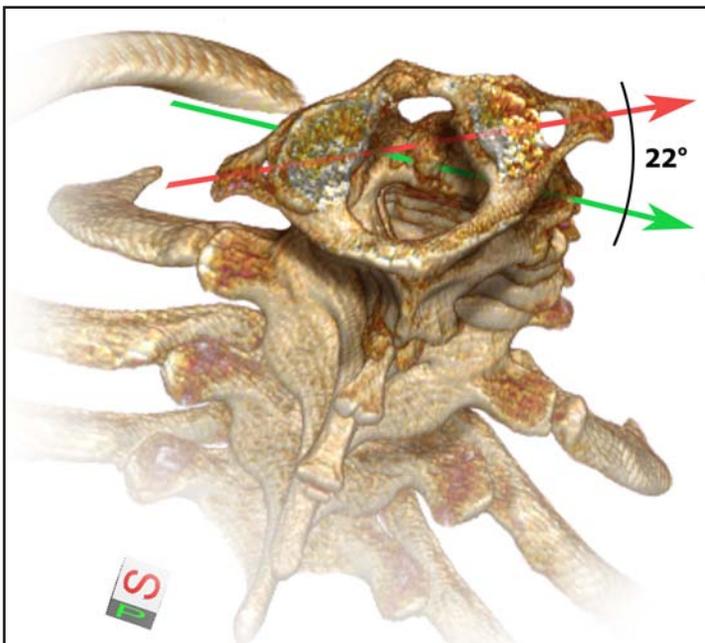


Figure 4: Still image 3D CT

Surgical Management

The potential for progressive neurologic injury associated with manipulating his cervical spine without decompression was determined to be high. The patient underwent fiberoptic intubation while immobilized in the position of rotary subluxation. With evoked potential monitoring, he was then pinned with the Mayfield 3 pin head holder and then carefully turned prone without correcting his alignment. The spine was then exposed in this position with attention to avoiding hypotensive episodes. C1 and C2 laminectomies were then carried out and a mild improvement in the evoked potentials on the right was noted. The C1-C2 subluxation on the right could not be reduced and a fine burr was used to remove the superior articular surface of C2 on the right. This allowed for reduction of the deformity. An occipital-cervical fusion was then performed. The patient did not have significant neurologic improvement, and persisting ventral soft tissue compressed

the ventral craniocervical junction. There was also considerable retropharyngeal soft tissue swelling from a paraspinous abscess. The patient underwent elective tracheotomy and then transoral decompression of the odontoid and ventral epidural soft tissue as well as debridement of the retropharyngeal abscess.



Figure 5: Lateral plain film and Sagittal CT reconstruction

Followup

At a 3 month followup, the patient had regained almost full strength in his right arm and leg and could walk normally. He was able to resume a normal diet. At 8 months, the patient was noted to be fused and had no residual neurologic deficit. He was able to resume all normal activities and has no pain. His tracheotomy has since been reversed.

(Figure 5 - Post-operative imaging).

Haroon F. Choudhri, M.D.

Video footage and animation supporting this case can be viewed at:

- <http://www.mcg.edu/som/neurosurgery/News & pubs/spinemovies>
- <http://www.complexspinesurgery.net/link1.html>

For more information about the MCG Spine Program, please visit:

- <http://www.complexspinesurgery.net>
- <http://www.mcg.edu/som/neurosurgery>

Faculty Update

Accomplishments and Recognition



John Vender, M.D.

John Vender, M.D. served on the Clinical Trials Award Study panel of the Department of Defense (a Congressionally-directed Medical Research Program). The panel reviewed clinical trial applications relevant to traumatic brain injury, posttraumatic stress disorder, and other military deployment-related brain injury. The meeting was held December, 2008 in Reston, VA.



Haroon Choudhri, M.D.

Haroon F. Choudhri, M.D. was Visiting Professor in the Department of Neurosurgery at the Ibn Sina Hospital, Kuwait, July 2008, at Zayed military hospital in Abu Dhabi, and at Tawam hospital (in affiliation with Johns Hopkins) in Al Ain, United Arab Emirates. He was also the Meeting Chairman at "Bringing Complex Spine Surgery to your Practice", in Atlanta, GA in August 2008. In addition he was Course Director for Cadaver Lab Course, "Advanced Instrumentation Techniques for Posterior Cervical Spine Surgery: Occipital Cervical, C12, Upper Thoracic" held in Atlanta, GA in July, 2008.



Cargill Alleyne, M.D.

Cargill H. Alleyne, Jr., M.D. was Visiting Professor in both the Department of Neurological Surgery at Stanford University Medical Center and at the Loma Linda University School of Medicine in November 2008. The topic of his lecture was "Neurologic injury and



Scott Rahimi, M.D.

Residents' and Students' Corner

Accomplishments and Recognition

The Council of State Neurological Societies' resident award was given to **Scott Rahimi, M.D.** our most recent graduate, at the Annual meeting of the Congress of Neurological Surgeons in Orlando, FL. **Douglas Hughes,**

Graduate student wins Brann scholarship

Melissa Laird, a Ph.D. graduate student working with **Dr. Krishnan Dhandapani** in the Neurovascular laboratory (directed by Dr. Dhandapani and **Dr. Alleyne**) received the 2008 Darrell W. Brann scholarship in Neuroscience. The award is given to an outstanding graduate student in Neuroscience. Ms. Laird graduated from McGill University with a M.S. in Physiology in 2002 and holds a M.S. in Exercise Physiology from Florida State University (2006). **Dr. Brann** is the Director of the Graduate program in Neuroscience and was recently appointed Regents' Professor of Neurobiology.

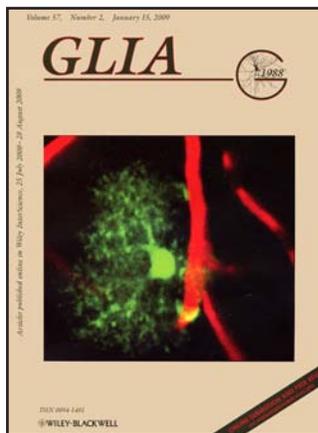
neuroprotection after subarachnoid hemorrhage".

Krishnan M. Dhandapani, Ph.D. served on the Clinical Trials Award Study panel of the Department of Defense (a Congressionally-directed Medical Research Program). The panel reviewed clinical trial applications relevant to traumatic brain injury, posttraumatic stress disorder, and other military deployment related brain injury. The meeting was held in December, 2008 in Reston, VA.



Kris Dhandapani, Ph.D.

Sergei Kirov, Ph.D. had his work featured on the cover of *Glia* (shown below). The image, captured by a two-photon laser scanning microscope, depicts



Cover of *Glia*, depicting swollen astrocyte following global ischemia

live astrocytes (green) and blood vessels (red) from layer II/III of somatosensory cortex in an intact mouse. Blood flow is stalled and astroglial soma and processes are swollen within 6 minutes of cardiac arrest-induced global ischemia (from the article "Real-time passive volume responses of astrocytes to acute osmotic and ischemic stress in cortical slices and in vivo revealed by two-photon microscopy."

Glia 57:207-221, 2008. Epub ahead of print.



Doug Hughes, M.D.

Medical student wins Dean's fellowship

Jay McCracken was one of 25 students to present his research findings as part of the Dean's Summer Research Fellowship. Jay worked with **Dr. Dhandapani** and **Dr. Alleyne** on the effect of curcumin, an active ingredient in curry powder, on a murine model of intracerebral hemorrhage. The positive finding that curcumin reduces the size of blood clots was reported by the MCG paper, *The Beeper*, and by the Augusta Chronicle.

To read about this research, please visit:
http://www.eurekalert.org/pub_releases/2008-09/mcog-isr092208.php

Spotlight on Creativity: Dr. Charles Ray

The following is the a reprint of the first part (used by permission) of an interview of Dr. Charles Ray, by Elizabeth Hofheinz, M.P.H., M.Ed, senior writer and editor of RRY publications. This was previously published in the July 18th issue of Orthopedics This Week. Dr. Ray, a neurosurgeon, inventor, and author, entered MCG medical school in 1952 and in his career has accomplished what most persons could never do in several lifetimes.

He invented the Prosthetic Disc Nucleus, spent time with Elvis, and rubs elbows with the likes of Henry Kissinger. Dr. Charles Ray, founder of Raymedica, leads a scintillating life indeed.

"I was born in Americus, Georgia, nine miles from Andersonville, site of the infamous Confederate prison. According to family documents, at the time of the Civil War my relatives felt compassion for the deceased Yankee soldiers, and washed their bodies in preparation for burial...an act of great solemnity. Eight miles in the other direction is Plains, Georgia, where my cousin, President Jimmy Carter, lives."

For Charles Ray, the path would be laid out by an encounter with an unfortunate canine. "At the age of nine I found a dog that had been killed on the road. I dragged it home, put it in a bag, and stashed it in our garden house. I was determined to make a skeletal preparation of the dog, but my mom smelled the odor and put the kibosh on my plan. It was typical of me, however, as I have always tried to do things to stretch my knowledge."

After Americus, Charles moved with his family to Atlanta and attended Technological High School. "I studied at Emory briefly then entered the Navy in 1945, just before the end of WWII. Following this I trained in the Naval Hospital School in Maryland and was stationed at the National Naval Medical Center from 1945 to 1947. One memorable episode from that period was when I had to insert a rectal tube into a full admiral. I said to him, 'Admiral, I'm going to do something that a lot of your junior officers would probably rather do.' Fortunately, he had a good sense of humor."

Finishing up with his naval duty, Charles Ray completed his undergraduate degree at Emory and began graduate school in physiological psychology at the University of Miami. Dr. Ray: "I had an opportunity to teach early on because my professor then passed away and I was asked to assume his classes so that his widow might continue to receive his salary. I then entered the Medical College of Georgia in Augusta in 1952, where as a freshman I came upon an anatomical variation in the skull. I went to the president of the school and he and his team looked through current medical books and found that I did in fact make a discovery. My reward from the school was a grant to study at Case Western, during which time I examined 1,000 skulls and published my results in the Journal of Physical Anthropology."

During his next professional experience, a chance meeting would give Dr. Ray a look into the life of an American icon. "After medical school I did a surgical internship at Baptist Memorial Hospital in Memphis, where it turned out that Elvis Presley's mother was a patient on my service. The Presleys were lovely people who invited me to their home for dinner on occasion. There was a urologist on staff at Baptist who had built a huge estate...this would eventually become known as Graceland. Elvis took me on a tour of the home and showed me his cars, which included a Messerschmitt. I'll never forget the night I was in the hall at Methodist Hospital talking with him when his mother died."

Always one to reach beyond the obvious, Dr. Ray would explore the possibilities beyond his normal, well, orbit. "In 1957 I entered a neurosurgery residency at the University of Tennessee. After the

third year my chief, Dr. Francis Murphy, asked me to open a lab for the department of neurosurgery, which I did. During that time I dropped out of the neurosurgery program for a year and used my machinist skills to build a refrigerating heart-lung machine for the lab. Then from 1962 to 1964 I was a fellow in neurophysiology and a bioengineering lecturer at the Mayo Clinic. I became the research assistant to the renowned Dr. Reginald Bickford, famous for the detection and amplification of brain signals. We began thinking that since we were using a primitive form of the computer to track brain signals, why couldn't we do that internationally? The Telstar 1 satellite had just been launched, so I went to RCA labs at Princeton and asked them if we could work together on this project. They agreed, but as we prepared to begin, Telstar 1 stopped working. RCA put up its own satellite, Relay 1, which did work, thus we transmitted the first medical signal via satellite from England to Mayo for computer processing. The headlines in The Times of London read, 'This is the beginning of a telemetering age of medicine.'"

Continued Dr. Ray, "During this time I was enrolled at the University of Minnesota in a Ph.D. program in clinical neurophysiology. I was told, however, that if I was going to take the neurosurgical board exams I had to stop this program and get my practice requirements in. I spoke to the Mayo neurosurgery chief, who said, 'We would love to have you stay here, but we've never had a neurosurgeon who was not trained here.' Although he did say that if I stayed there as a fellow for a year we could work something out. But I knew I was ready for practice, so in 1965 I accepted an offer from Dr. Earl Walker, the Chief of Neurosurgery at Johns Hopkins, where as an Assistant Professor I ran part of a research and electroencephalography lab, taught bioengineering and opened another lab in which we did electrophysiological and deep brain measurements."

Known for his lab expertise, Dr. Ray would travel the world...only to return home to an extraordinary personal challenge. "In 1968 I was offered the opportunity to open a medical device development division for Hoffman LaRoche in Switzerland. Unfortunately I had a lot of interference from the company because they didn't understand medical devices. After five years in Switzerland I was frustrated so I contacted an old friend from Mayo Clinic days, Earl Bakken, who co-founded Medtronic. He invited me to Medtronic so I moved the family to Minnesota. While underway to Minneapolis at Christmas-time 1972, my entire family was in a car accident in which my wife was killed and I and my four children were injured. This time of enormous stress was heightened by the fact that we knew almost no one in Minneapolis. I dove into work to the best of my ability and started the neurorehabilitation division of Medtronic. This was the first major diversification within Medtronic and was satisfying in that I was able to do what I thought was of value for the company and countless patients. We specialized in developing neurostimulators, including transcutaneous, deep brain and spinal cord stimulators. I then traveled all over the globe teaching surgeons how to use them. It was during this time that I was appointed to the first FDA Classification Panel on Neurologic Devices in 1976. I asked why our Neurologic Panel or any other FDA Panel had not been assigned the review of chiropractic devices, since they claim to work on the nervous system. We then reviewed several and found their diagnostic and treatment device claims to be unfounded, recommending that they be prohibited due to non-function and mislabeling."



Charles Ray, M.D.

The conclusion of this article will appear in our next issue of Neuroscience Outlook.

Presentations and Publications (July 2008 - December 2008)

Presentations

Smith JR, Fountas, KN, **Jenkins PD**, **Jensen MA**: Results of intracranial stimulation studies: implications for seizure focus localization. American Society for Stereotactic and Functional Neurosurgery, Vancouver, British Columbia., June, 2008

Alleyn CH: Subarachnoid hemorrhage and management of unruptured intracranial aneurysms. Neurology Residents Noon Conference, Medical College of Georgia, July 2008

Yanasak N, Allison JD, Zhao Q, Hu T, **Dhandapani KM**: The benefits of non-uniform gradient direction specification in DTI: Simulations and phantom data. American Association of Physicists in Medicine Meeting, Houston, TX, July 2008

Alleyn CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, July 2008

Alleyn CH: Management of unruptured intracranial aneurysms. National Medical Association Meeting, Atlanta, GA, July 2008

Choudhri HF: Thoracic & Lumbar Spine Instrumentation Techniques. Visiting Professor, Ibn Sina Hospital, Department of Neurosurgery, Kuwait July 2008

Choudhri HF: Advanced Instrumentation Techniques for Posterior Cervical Spine Surgery: Occipital Cervical, C12, Upper Thoracic Lecture and Course Director for Cadaver Lab Course, Atlanta, July 26, 2008

Choudhri HF: Meeting Chairman. Bringing Complex Spine Surgery to your Practice, Atlanta, August 2008

Choudhri HF: Posterior Cervical & Thoracic Surgery – Instrumentation Techniques. Visiting Professor, Tawam Hospital, In Affiliation with Johns Hopkins, Al-Ain, UAE August 2008

Choudhri HF: Posterior Occipital, Cervical & Thoracic Instrumentation Techniques (Lecture & Workshop). Visiting Professor, Zayed Military Hospital, Abu Dhabi, UAE August 08

Choudhri HF: Surgical Management of Postoperative Cervical Kyphosis (Hospital-wide CME program). Visiting Professor, Zayed Military Hospital, Abu Dhabi, UAE August 2008

Alleyn CH: Vascular access. Fundamental Critical Care Support Course (Instructor), Medical College of Georgia, August 2008

Choudhri HF: Ventral approaches to the craniocervical junction. Bringing Complex Spine Surgery to your Practice, Atlanta, GA, August 2008

Choudhri HF: Cervical-thoracic deformity: Prevention and treatment strategies. Bringing Complex Spine Surgery to your Practice, Atlanta, GA, August 2008

Choudhri HF: Reconstruction of ventral thoracolumbar corpectomy defects with vertical distraction cages. Bringing Complex Spine Surgery to your Practice, Atlanta, GA, August 2008

Choudhri HF: Role of CT in spine surgery. Annual Pool Society Meeting, Department of Radiology, Medical College of Georgia, August 2008

Laird MD, **Alleyn CH**, **Dhandapani KM**: Hemin-induced necroptosis involves glutathione depletion in mouse astrocytes. Congress of Neurological Surgeons Meeting, Orlando, FL, September 2008

Rahimi SR, **Alleyn CH**, **Hughes DG**, **Witcher MR**, **Vender JR**: Post-operative pain management following craniotomy using atypical analgesics: Evaluation and cost analysis. Congress of Neurological Surgeons Meeting, Orlando, FL, September 2008

Youssef P, **Alleyn CH**: Aneurysm associated with an accessory MCA. Congress of Neurological Surgeons Meeting, Orlando, FL, September 2008

Giller CA, Liu H, German DC, Kashyap D, Dewey RB, Jr.: Further experience with a stereotactic near-infrared probe for localization during functional neurosurgical procedures. Congress of Neurological Surgeons Meeting, Orlando, FL, September 2008

Yanasak N, Allison JD, Zhao Q, Hu TC, **Dhandapani KM**: Non-uniform gradient prescription for precise angular measurements using DTI. Proceedings of the 11th International Conference on Medical Image Computing and Computer Assisted Intervention, New York, NY, September 2008

Vender JR: Traumatic brain injury. Neurology Grand Rounds, Medical College of Georgia, September 2008

Alleyn CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, October 2008

Dhandapani KM: Toll-like receptor 4: A novel link between neurotrauma and the development of cerebral edema? Institute of Neuroscience, Medical College of Georgia, October, 2008

Vender JR: Dorsal Column stimulators: A surgeon's perspective. South Carolina Pain Society Meeting, Hilton Head Island, SC, October 2008

Choudhri HF: Surgical & Perioperative Management of the Previously Operated & Narcotic Dependent Patients. Visiting Professor, Tawam Hospital, In Affiliation with Johns Hopkins, Al-Ain, UAE, October 2008

Choudhri HF: Management of postoperative cervical kyphosis. Zayed military Hospital, Abu Dhabi, UAE, October 2008

Choudhri HF: Management of pain in previously-operated spine patients. Tawam hospital, Al Ain, UAE, October 2008

Alleyn CH: Neurologic injury and neuroprotection after subarachnoid hemorrhage. Visiting professor, Department of Neurosurgery, Stanford University Medical Center, Palo Alto, CA, November 2008

Alleyn CH: Neurologic injury and neuroprotection after subarachnoid hemorrhage. Visiting professor, Department of Neurosurgery, Loma Linda University School of Medicine, Loma Linda, CA, November 2008

Risher WC and **Kirov SA**: Rapid astroglial swelling after osmotic and ischemic stress revealed by in vivo two-photon imaging. The 38th Society for Neuroscience Annual Meeting, Washington DC, November 2008

Witcher MR, Park YD, **Lee MR**, Harris KM, **Kirov SA**: Preservation of the association between perisynaptic astroglia and synapses that remain after profound synapse loss during human mesial temporal lobe epilepsy. The 38th Society for Neuroscience Annual Meeting, Washington DC, November 2008

Tuttle J, **Hughes D**, **Macomson SD**: Bilateral interhemispheric subdural hematoma: Case report and review of literature. Georgia Neurosurgical Society Meeting, November 2008

Fessler D, **Shah H**, **Dhandapani KD**, **Alleyn CH**: Evaluation of novel anti-inflammatory compounds in attenuating cellular edema in traumatic spinal cord injury. Georgia Neurosurgical Society Meeting, November 2008

Alleyn CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, December 2008

Choudhri HF: Imaging of Spinal Hardware: What exactly are complicating features? Radiological Society of North America, Chicago, December 2008

Publications

Wakade CG, Sangeetha SR, Laird MD, **Dhandapani KM**, **Vender JR**: A temporal study of post-synaptic density protein 95 expression after traumatic brain injury. *J Neurotrauma* 25:878, 2008

Laird MD, Wakade CG, **Vender JR**, **Dhandapani KM**: Toll-like receptor-4 promotes cerebral edema following traumatic brain injury in mice via increased aquaporin-4 expression. *J Neurotrauma* 25:870, 2008

Laird MD, Wakade C, **Alleyn CH**, **Dhandapani KM**: Peroxynitrite mediates hemin-induced necroptosis in mouse cortical astrocytes. *Free Radic Biol Med* 45:1103-1114, 2008

Pillai A, Veeranan-Karmegam R, **Dhandapani KM**, Mahadik SP. Cystamine prevents haloperidol-induced decrease of BDNF/TrkB signaling in mouse frontal cortex. *J Neurochem* 107:941-951, 2008

Yanasak N, Allison JD, Zhao Q, Hu TC, **Dhandapani KM**. Non-uniform gradient prescription for precise angular measurements using DTI. *International Conference on Medical Image Computing and Computer Assisted Intervention* 11: 866-873, 2008

Risher WC, Andrew RD, **Kirov SA**: Real-time passive volume responses of astrocytes to acute osmotic and ischemic stress in cortical slices and in vivo revealed by two-photon microscopy. *Glia* 57: 207-221, 2008 (Epub ahead of print)

Giller CA, Fiedler JA: Virtual framing: the feasibility of frameless radiosurgical planning for the Gamma Knife. *J Neurosurg* 109 (Suppl): 25-33, 2008

Giller CA, Liu H, German DC, Kashyap D, Dewey DB: A stereotactic near-infrared probe for localization during functional neurosurgical procedures: further experience. *J Neurosurg* Nov 14, 2008 (Epub ahead of print)

Giller CA, Barnett DW, Thacker IC, Hise JH, Berger BD: Multidisciplinary treatment of a large cerebral dural arteriovenous fistula using embolization, surgery and radiosurgery. *Baylor University Medical Center Proceedings* 21: 255-257, 2008

Smith JR, Fountas KN: Technique of subdural and stereotactic depth electrode implantation in the evaluation of ablative epilepsy surgery candidates. In: *Neurosurgical Operative Atlas*, 2nd ed.: Functional Neurosurgery, 3 – 11, 2008



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Neuroscience Outlook

To learn more about the MCG Department of Neurosurgery, please visit:
www.mcg.edu/som/neurosurgery

Conference Schedule (January 2009 - June 2009)

All grand rounds and conferences take place on Friday in the 3 West amphitheater.

Jan 09	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference	Mar 13	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference	May 15	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference
Jan 16	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference	Mar 20	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference	May 22	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. Hamid Shah "Skull and Skull-based tumors" (Youmans Ch. 71) Oral Board Review Spine Conference M&M
Jan 23	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference	Mar 27	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. John Vender "Head Injury" Oral Board Review Spine Conference M&M	May 29	NO CONFERENCE	
Jan 30	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. Ahmed Shakir "Acoustic Neuroma" (Youmans Ch. 65) Oral Board Review Spine Conference M&M	Apr 03	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference	Jun 05	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference
Feb 06	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference	Apr 10	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference	Jun 12	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference
Feb 13	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference	Apr 17	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference	Jun 19	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference
Feb 20	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Anatomy Pathology Spine Conference Case Conference	Apr 24	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. Dion Macomson "Ventricular Tumors" (Youmans Ch. 70) Oral Board Review Spine Conference M&M	Jun 26	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. Patrick Youssef "Pineal Tumors" (Youmans Ch. 56) Oral Board Review Spine Conference M&M
Feb 27	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Neuro 101: Dr. Jonathan Tuttle "Pituitary Tumors" (Youmans Ch. 66) Oral Board Review Spine Conference M&M	May 01	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference			
Mar 06	10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Oral Board Review Spine Conference Case Conference	May 08	9:00 - 10:00 10:00 - 11:00 11:00 - 12:00 12:00 - 1:00	Journal Club Radiology Spine Conference Case Conference			

Upcoming Meetings (January 2009 - June 2009)

- AANS/CNS Section on Cerebrovascular Surgery**
2/16-17, San Diego, CA
- International Stroke Conference**
2/17-20, San Diego, CA
- Southern Neurosurgical Society**
3/25-28, Greensboro, GA
- AANS/CNS Section on Disorders of the Spine & Peripheral Nerves**
3/11-14, Phoenix, AZ
- American Association of Neurological Surgeons**
5/2-6, San Diego, CA
- Society of Neurological Surgeons**
5/16-19, Salt Lake City, UT
- Georgia Neurosurgical Society**
5/23-25, Sea Island, GA
- Neurosurgical Society of America**
6/7-10, Hot Springs, VA

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