Medical College of Georgia
Neuroscience Outlook
Department of Neurosurgery Newsletter
Volume 6, Issue 1 - Summer 2009

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Neuroscience Center

Clinical Spotlight: ***Treatment of complex cerebrovascular lesions***

Chair's Message

Welcome to the Summer 2009 issue of our newsletter. In this issue we highlight the awards and accolades garnered by our clinical and research faculty as well as our graduate and medical students. As we continue to expand our program I am happy to report the addition of Dr. Jonathan Tuttle, our most recent graduate, to the faculty (see Transitions). In the clinical spotlight we present the multimodal management of three complex cerebrovascular lesions. On the front cover we are pleased to feature the excellent artistry of our guest illustrator Steve Harrison, Ph.D. Dr. Harrison is Associate Professor and Chair of the Medical Illustration graduate department at MCG. In the Spotlight on Creativity section we provide the second half on an interview with Dr. Charles Ray, as previously published in Orthopedics This Week. Our academic productivity over the last 6 months is also chronicled. We continue to strive to maintain excellence in research, teaching and patient care and hope that you enjoy these highlights shared with you.

Cargill H. Alleyne, Jr., M.D.
Professor and Marshall Allen Distinguished Chair

Department News

Transitions

Dr. Jonathan Tuttle

Jonathan Tuttle, M.D. joined our faculty as Assistant Professor on July 1 bringing our total complement to eight (including 2 affiliated positions at the VA). Dr. Tuttle graduated from our residency program in June 2009. He completed his undergraduate studies from Alma College, Alma, Michigan, in May 1993 where he obtained a B.S. magna cum laude in Exercise and Health Science. He was accepted into the University of Cincinnati's Physical Therapy program and completed the requisite A.S. degree magna cum laude in Science technology. However, instead of completing physical therapy, he chose a career in medicine and in 2003 he received his M.D. degree from Wright State University in Dayton, Ohio where he won a Montgomery County Alliance Scholarship in 2001. During his neurosurgery residency at the Medical College of Georgia he completed a spine fellowship with Dr. Norman Chutkan, Chairman of Orthopedic Surgery. Dr. Tuttle has numerous publications and presentations to his credit and has previously won the Resident Award from the Council of State Neurosurgery Societies for his paper on Healthcare management 101. This was presented at the Congress of Neurological Surgeons Meeting in October 2004.

Dr. Tuttle is an outstanding addition to our faculty and will complement the practice of Dr. Haroon Choudhri, Chief of the division of Complex Spine in the Neurosurgery Department. Dr. Tuttle will also continue to work closely with Dr. Chutkan in Orthopedic Surgery and will participate in the recently opened MCG Orthopedic Associates outpatient spine clinic. His practice will include the surgical treatment of cervical and lumbar degenerative disease, spine trauma, minimally invasive spine techniques for decompression or fusion, kyphoplasty, and spinal deformity correction.

Faculty member wins inaugural resident teaching award

Dion Macomson, M.D. was selected for an inaugural Exemplary Teaching Award from the School of Medicine for outstanding contributions to resident teaching during the 2007-8 academic year. For details on this achievement and others in this section, see the Accomplishments and recognition section on page 5.

Two faculty members win inaugural Brain Discovery Institute grant

Krishnan M. Dhandapani, Ph.D. and Cargill H. Alleyne, Jr., M.D. was one of four groups awarded an inaugural grant from the Brain and Behavior Discovery Institute (BBDI). The BBDI is one of currently five Discovery Institutes conceived by Dean Douglas Miller to enhance collaboration between basic and clinician scientists.

Two faculty members cited as Best Doctors in America

Cargill H. Alleyne, Jr., M.D. and Cole A. Giller, M.D., Ph.D., M.B.A. were cited as one of the Best Doctors in America 2009-2010. Both surgeons were previously honored with this citation; Dr. Alleyne in 2007-2008 and Dr. Giller in 2003-2004.

Medical students win AOA student research fellowship and Beard award

Jay McCracken, B.S., (class of 2011) interested in pursuing neurosurgery was awarded Alpha Omega Alpha Carolyn L. Kuckein Student Research Fellowship and **Mark Witcher, M.D., Ph.D.** (class of 2009) received the John F. Beard award for Compassionate Care.

Ph.D. neuroscience student meets with Nobel Laureate

Melissa Laird, M.S., a fourth-year Ph.D. student working with Dr. Dhandapani in the Neurovascular lab was one of about 600 students worldwide invited to an annual educational meeting of Nobel Prize laureates in Lindau, Germany.

Department represented at Staulcup golf tournament

The A. R. Staulcup fundraising golf tournament was held on May 9th at Applewood golf course in Keysville, GA. The tournament is held annually in memory of Mr. Ray Staulcup who died of a brain tumor roughly 8 years ago. He was cared for by MCG physicians and to show their appreciation the family created the foundation after his death to raise money for brain tumor research. The majority of the foundations funds derive from this annual event. Mr. Chris Bonham, our Administrator, Ms. Rebecca Cantrell, our radiation physicist in the gamma knife suite, and Drs. S. Dion Macomson and Cargill Alleyne comprised the foursome. While our golf game left much to be desired, fun was had by all.

Contributor acknowledgement

We thank the **A.R. Staulcup Foundation** for their generous donation of funds to brain tumor research in our department.

Clinical Spotlight

Treatment of complex cerebrovascular lesions

Case 1:

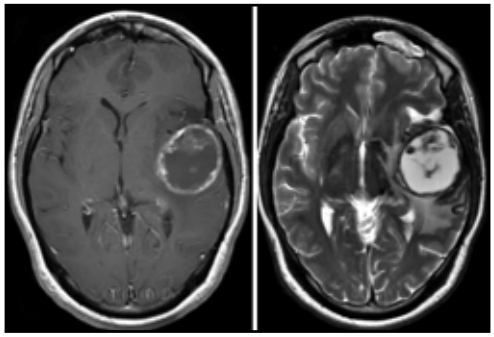


Figure 1a

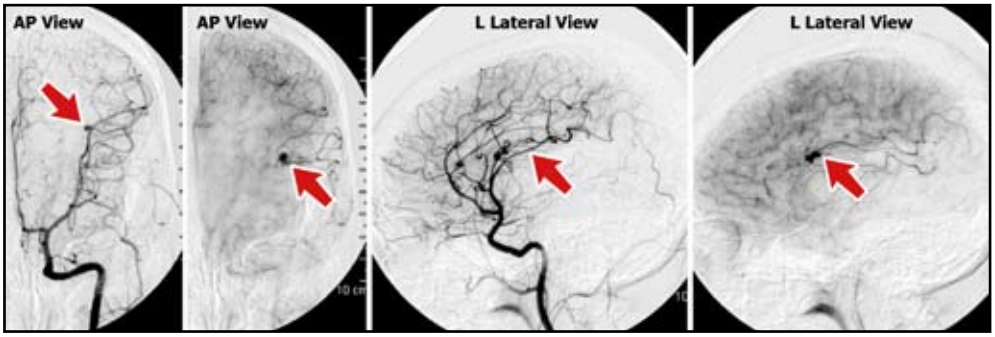
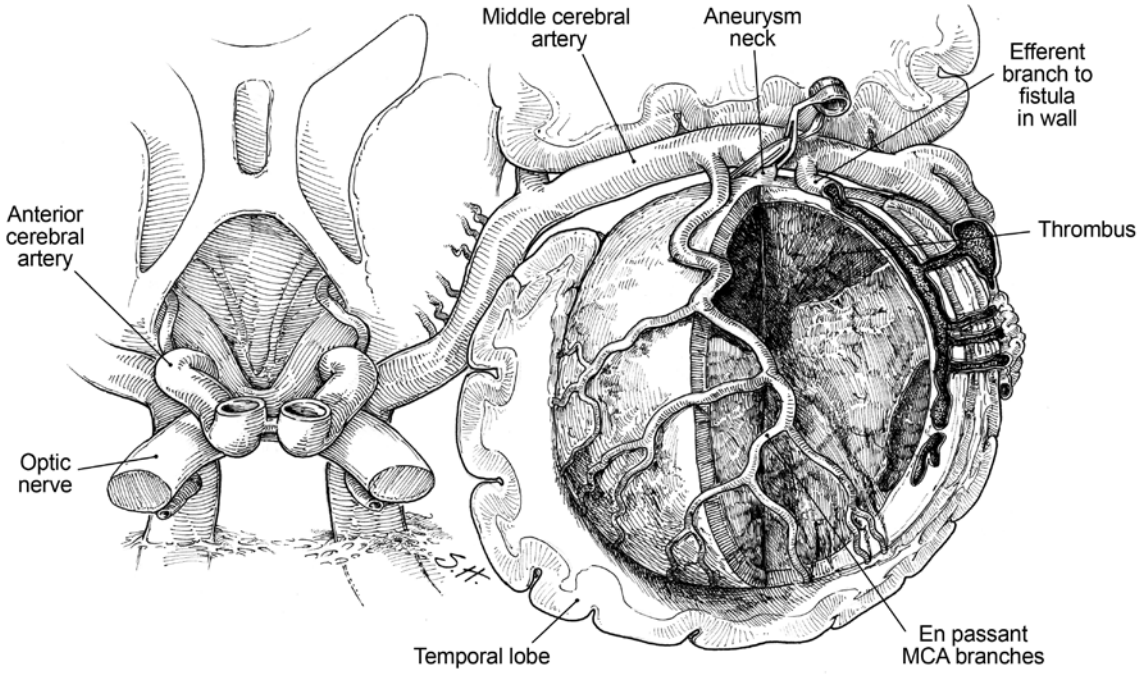


Figure 1b

A 36-year-old right handed woman was referred to our institution with a recent history of a seizure and headaches. Her head CT and MRI (figure 1a) showed a massive lesion in the left temporal fossa suggestive of a giant thrombosed aneurysm with significant edema. A cerebral angiogram showed no filling of the aneurysm but did show considerable mass effect on the middle cerebral artery branches (figure 1b). In addition, a small low-flow arteriovenous fistula was visualized at the periphery of the mass (arrows, figure 1b). A left frontotemporal craniotomy was performed and the lesion was explored. The neck of the aneurysm was a small branch from the MCA trunk. This was clipped and ligated. The aneurysm wall was opened and the lumen entered (figure 1c). The contents (filled with varying stages of blood products, from fibrous healed tissue to dark brown clot to yellowish serum) were evacuated and the wall excised (figure 1d). A small tortuous branch of the MCA was embedded in the wall and led directly into the venous tuft of vessels. The afferent vessel of the fistula was excised with the wall but a tiny portion of the wall that was adherent to the veins was left intact. The postoperative MRI is shown (figure 1e).



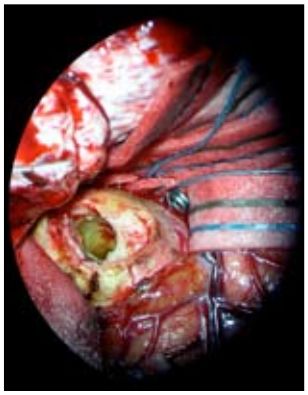


Figure 1c

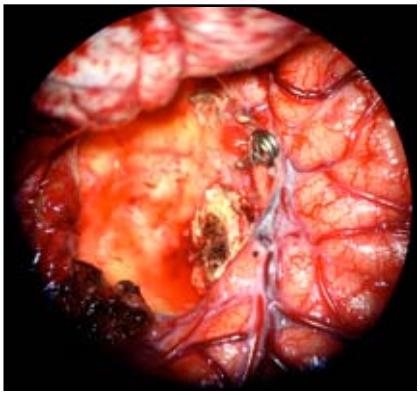


Figure 1d

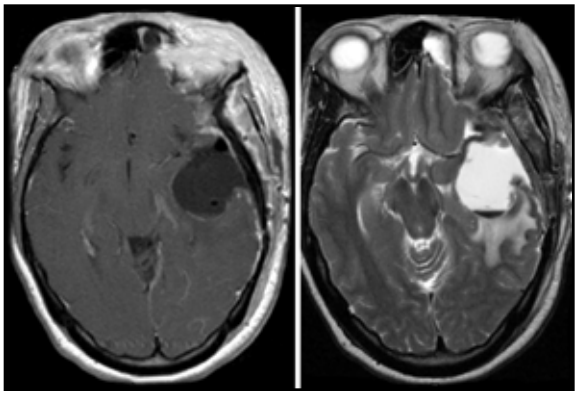


Figure 1e

Clinical Spotlight *(continued)*

Case 2:

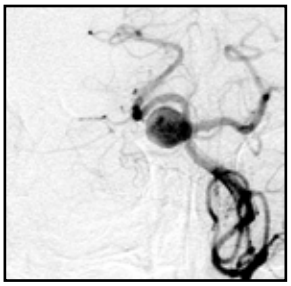


Figure 2a

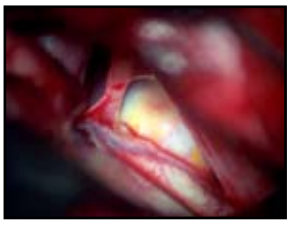


Figure 2b

A 55-year-old right-handed woman was referred to our institution with a 4-month history of diplopia and vertigo. She carried a history of a cardiac arrhythmia. Neurological examination was benign. An MRI and a cerebral angiogram confirmed a giant superior cerebellar artery aneurysm on the right with a wide neck (figure 2a). A discussion of the options included stent-coiling and surgical clipping. A plan was devised to endovascularly stent across the aneurysm neck and to coil through the stent. Despite multiple attempts to pass the microwire into the right P1 segment, it could only be directed into the aneurysm given its high flow. After further discussion an open surgical procedure was planned. Hypothermic circulatory arrest was contemplated but given the patient's history of cardiac arrhythmia this was thought risky. A right fronto-orbitozygomatic craniotomy was performed but the operative view was limited given the girth of the aneurysm (figure 2b). Four titanium clips were placed (figure 2c) and the intraoperative angiogram showed a crescent shaped residual (figure 2d). She was discharged home on postoperative day 3 and the residual was followed for several months with minimal change. With the FDA approval of the Enterprise stent, the patient was brought back for another attempt at stent-coiling. On this occasion, with the aneurysm volume and flow much reduced, the stent-coiling procedure was successful with a Cordis 32-mm Enterprise stent and 13 Cordis Orbit coils (figure 2e). A one-year follow-up study showed no recurrence.

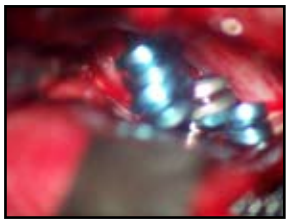


Figure 2c

Figure 2d

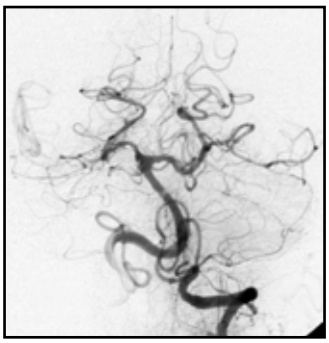


Figure 2e

Case 3:

Figure 3a

A 56-year-old man was transferred from an outside hospital with the acute onset of headache and dysphasia. His head CT showed a left frontal hemorrhage (figure 3a) and an angiogram revealed an arteriovenous malformation fed by branches of the ACA and MCA and with a complex venous drainage pattern into the superior sagittal sinus. A large venous varix was seen posterior to the AVM (figure 3b).

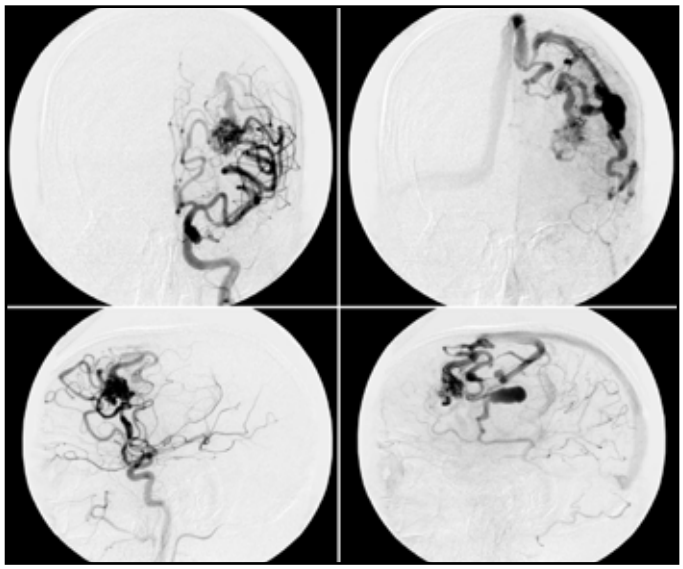


Figure 3b

The patient underwent embolization of four feeding branches to the lesion in two stages. He was then taken to surgery where a resection of the AVM was performed. A postoperative angiogram (figure 3c) confirmed complete resection of the nidus and non-filling of the venous varix. At the 3-month postoperative visit his dysphasia had resolved.

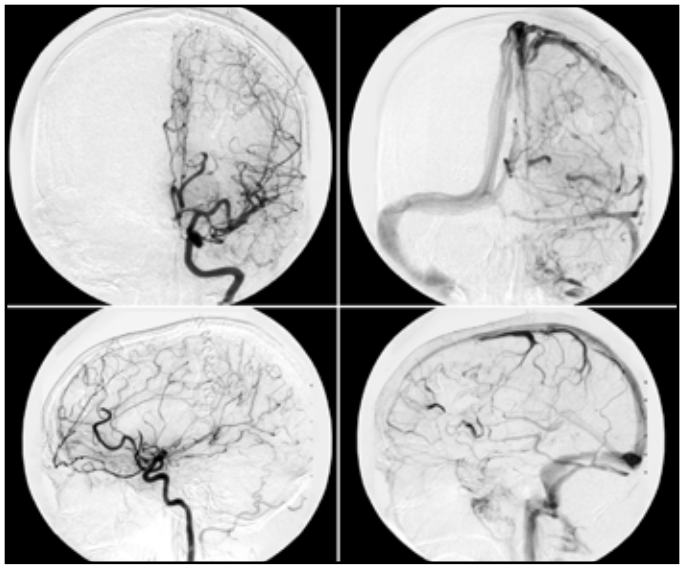


Figure 3c

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

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

- ***http://www.mcg.edu/som/neurosurgery/Neurovascular/index.htm***

Faculty and Staff Update

Accomplishments and Recognition


Sergei Kirov, Ph.D.

Sergei Kirov, Ph.D. served on the NIH Neurodifferentiation, Plasticity, and Regeneration study section in June 2009. In addition, one aspect of Dr. Kirov's research was highlighted in multiple media sources including the Augusta Chronicle, CNN National Public Radio and numerous online newspapers. The Human Brain Bank, a repository of living tissue harvested from surgical cases, serves as the perfect environment to test a variety of drugs that may target the peri-infarct depolarization that occurs after a stroke.


K. Dhandapani, Ph.D.

Krishnan M. Dhandapani, Ph.D. served on the American Heart Association Region II Brain study section in April 2009. He also received an inaugural grant (with co-PI Dr. Alleyne) from the Brain and Behavior Discovery Institute at the Medical College of Georgia for "Synthesis of analogues of the natural ingredient curcumin with increased efficacy and bioavailability". The purpose of this collaborative effort with East China Normal University in Shanghai is to devise synthetic analogues of curcumin (a key ingredient in curry) which has shown promise in the lab as a neuroprotectant.


Dion Macomson, M.D.

S. Dion Macomson, M.D. was selected for an inaugural Exemplary Teaching Award from the School of Medicine for outstanding contributions to resident teaching during the 2007-8 academic year. He was among several MCG faculty presented with a certificate and a monetary award at the School of Medicine Faculty Awards Ceremony in April.


Haroon Choudhri, M.D.

Haroon F. Choudhri, M.D. was promoted to Professor of Neurosurgery effective July 1. He was also Visiting Professor at King Fahad Medical City in Riyadh, Saudi Arabia in June 2009. He discussed the management of iatrogenic cervical deformity, the management of complex mass lesions at the craniocervical junction, and cervical spine instrumentation techniques.


Cole Giller, M.D.

Cole A. Giller, M.D., Ph.D., M.B.A. was cited as one of the Best Doctors in America 2009-2010.

Cargill H. Alleyne, Jr., M.D. was promoted to Professor of Neurosurgery, Neurology and Radiology on July 1. He was also cited as one of the Best Doctors in America 2009-2010 and one of America's Top Surgeons for 2009. In addition, he received an inaugural grant (with co-PI Dr. Dhandapani) from the Brain and Behavior Discovery Institute at the Medical College of Georgia for "Synthesis of analogues of the natural ingredient curcumin with increased efficacy and bioavailability". Dr. Alleyne was also Visiting Professor at Medical Center of Central Georgia (Mercer University) in Macon, GA in January 2009 where he discussed neurologic injury and neuroprotection after subarachnoid hemorrhage. Finally, he was inducted into the Neurological Society of America in June.


John Vender, M.D.

John Vender, M.D. was promoted to Professor of Neurosurgery effective July 1.

Residents' and Students' Corner

Accomplishments and Recognition


John Tuttle, M.D., and colleagues

Jonathan Tuttle, M.D. was honored at our annual resident graduation ceremony in June. We are delighted to welcome John to our faculty as our second complex spine surgeon (see transitions). In addition, Dr. Tuttle was faculty instructor for the AOSpine North America Operating Room Personnel course in New Orleans in May.

Ph.D student meets with Nobel Laureate

Melissa Laird, M.S., a fourth-year Ph.D. student working with Dr. Dhandapani in the Neurovascular lab was one of about 600 students worldwide invited to an annual educational meeting of Nobel Prize laureates in Lindau, Germany. She had dinner with Peter Agre (Johns Hopkins University), who won the 2003 Nobel Prize in Chemistry for the discovery of aquaporins, proteins that act as channels for water in the cell.. Ms. Laird's research examines the role of aquaporin and HMGB-1 in the development of brain swelling after trauma and hemorrhage.

Medical student wins Beard award

Mark Witcher, M.D., Ph.D. (class of 2009) received the John F. Beard award for Compassionate Care. The $25,000 award is given annually to a graduating MCG student who exemplifies caring and compassion in health care. It is endowed by Mr. William "Billy" Payne (chair of the Augusta National Golf Club) and his wife Martha. Mark matched in Neurological Surgery at Wake Forest.

Medical student wins AOA research fellowship

Jay McCracken, B.S., one of the medical students (class of 2011) interested in pursuing neurosurgery was awarded Alpha Omega Alpha Carolyn L. Kuckein Student Research Fellowship to pursue research (Curcumin promotes hematoma resolution and attenuates inflammation and edema following intracerebral hemorrhage in mice) in the neurovascular lab co-directed by Drs. Dhandapani and Alleyne. This national research fellowship is presented to medical students with exceptional research proposals.

Residency program update

This summer we welcomed our new PGY-1 resident, **Michael Neil Woodall M.D.** Neil completed his medical training at Mercer School of Medicine in Macon, Georgia where he was elected to the AOA honor society as a junior. We wish him well as he joins our training program.

Spotlight on Creativity: Dr. Charles Ray *(Part 2)*

The following is the second part (used with permission) of an interview with 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 2008 issue of Orthopedics This Week. Dr. Ray, a neurosurgeon, inventor, and author, entered medical school at MCG in 1952.

A foray into private practice would stimulate Dr. Ray's creativity and lead to a pain-relieving device for thousands the world over. "I started a multidisciplinary practice in Minneapolis consisting of three neurosurgeons, three orthopedists, and three nonsurgeons. Because I had limited formal training in orthopedics, I swapped skills with my orthopedic colleagues, i.e., we scrubbed in with one another on cases. It was then that I effectively did a fellowship and learned how to do spinal fusions. During this time the thought occurred to me, 'What is the fusion hardware actually meant to do?' The only thing creating a fusion is bone growth and for that one must augment the biology of bone growth. Given that the closer you are to the center of rotation of any object the more control you have, I figured that if you really want to create a situation devoid of movement you should put something in the middle of the vertebral disc. So, I invented my fusion cage, which featured deep, self-tapping threads and a unique spiral window design to maximize bone to bone contact. To date over 300,000 people in 28 countries have received these cages."

Now fixated on the spine, Dr. Ray dug deeper. "I set out to find the root of the problem as to why the spine degenerates and becomes painful. At that time the herniated disc was the bread and butter of neurosurgeons, but after removal of a herniated disc they had nothing to put in so I figured the nucleus needed studying. I looked at the chemistry of nucleus degeneration in work that had been done in animal studies. I saw that what triggered nucleus degeneration was altered metabolism and that the majority of metabolic products go into and come out through the endplate of the vertebrae. So if the nucleus degenerates then something is wrong with the endplates. Let's say you create an artificial nucleus and use it or take a graft from another nucleus or cloned tissues that will have some natural metabolism. If the endplate is still defective, the new implant is going to die. I couldn't do anything about the endplate but I knew I could make an implant with no metabolic activity. I quite literally looked around the world for a polymer but couldn't find one. I finally located a retired professor of chemistry in San Diego, with whom I consulted, and then found someone in Czechoslovakia and from that a polymer emerged. It had to be contained so that it wouldn't swell without limitations, so I put it in a polyethylene jacket. It also gives something for the tissue to hang onto. After patenting that, it occurred to me that a polymer is a good way to release drugs. So we filed another patent for the release of growth substances which can regenerate the nucleus. This would make it the only prosthetic device ever designed to actually, biologically replace the part it was treating."

Fast becoming a dignitary in the world of spine, Dr. Ray would go on to co-found the North American Spine Society and become the founding President of the Spine Arthroplasty Society. Also a co-founder of the American College of Spine Surgery and the American Board of Spine Surgery, Dr. Ray routinely brought his thoughtful perspective to his colleagues. "Once you become a physician you learn that your education is never finished. It is important to look around you and determine what is lacking in the field. Several years ago I found that there was a significant lack of focus on spine within neurosurgical and orthopedic training. I published a paper in which I chastised neurosurgeons for this. I spent two years taking count of all the papers presented at major national and international neurosurgery meetings. Then I counted the number of papers published in two major neurosurgery journals in the U.S. and two abroad. I found that while 62% of the income of neurosurgeons is from spine, only 3.2% of the presentations at these meetings and 3.5% of the papers published in national and international neurosurgery journals have to do with spine. Not surprisingly, I had trouble getting my paper published in a neurosurgical journal. As a result of this work I joined in the establishment of a different organization…the American Board of Spine Surgery. The biggest problem I've had in revealing the need and recognition for a separate spinal board certification is organized neurosurgery. The American Board of Spine Surgery requires board certification in either neurosurgery or orthopedics. In addition, surgeons have to have done a spine fellowship or devoted 50% of their practices to spine for the last five years and submit 100 cases in spine. The spine is an organ of the body, the physical structure on which all else hangs. It is vital and deserves specialization."

Yes, Dr. Ray is dedicated to opening the eyes of his fellow neurosurgeons. "Like many things in spine, the devil is in the details. When I worked in Minneapolis for more than 30 years, about 20% of my practice included cases first seen at the Mayo Clinic. The neurosurgeons there were telling patients that lateral spinal stenosis was not a surgical problem, but I couldn't believe this. It turns out that the lead radiologist was making CT slices of the spine that were too thick: five- or six-millimeter slices would miss a two-millimeter bone spur, the major cause of foraminal spinal stenosis. We looked at over 9,400 CTs and MRIs and found that 17% of patients who walk in the door for a scan have lateral stenosis at L5 - S1. I was lecturing on this in Boston one day when a neurosurgeon said, 'We never see this problem here.' My response to him was, 'Are you a birdwatcher?' to which he replied, 'No.' I then told him, 'Then I doubt if you went into the forest that you'd see many birds, either.'"

But Dr. Ray, who already has 53 U.S. patents, 15 more in review and 365 articles, chapters, books, videos, and editorials, doesn't rest on his laurels. Says Dr. Ray, "My next project is a book on the nature of creativity in which I will discuss how pleasure is a form of neurochemical tension release. When tension is relieved we call it pleasure, but that is not necessarily sensual or physical. For example, let's say for several days you have been looking for your keys with a concomitant increase in tension which interferes with your functioning. When you do find the keys it is so exciting and relieves an enormous amount of built-up tension. I liken that to compulsions for creative people. Creative individuals build up tension that is relieved only by the release of the pleasure center. With the use of scanning such as PET, we can locate these centers." Notes Dr. Ray, "Creativity is a compulsion that one does not turn off; hopefully it has social values as well."

When he needs extra fuel for his intellectual pursuits he heads to Washington, D.C., where he may use one of the five languages at his command. "Several years ago I was honored with an invitation to join the Cosmos Club, a social organization whose goal is to advance its members' knowledge of the arts and sciences. The Club is to a great extent populated by Nobel Laureates and other well-known individuals such as Carl Sagan and Henry Kissinger. I always leave their meetings feeling uplifted and intellectually stimulated."

Dr. Charles Ray…a titan of innovation and higher thought.

Charles Ray, M.D.

Presentations and Publications (January 2009 - June 2009)

Presentations

Alleyne CH: Subarachnoid hemorrhage and management of unruptured aneurysms. Radiology Noon Conference. Medical College of Georgia, January 2009

Alleyne CH: Neurologic injury and neuroprotection after subarachnoid hemorrhage. Visiting professor, Department of Neurosurgery, Medical Center of Central Georgia (Mercer University), Macon, GA, January 2009

Vender JR: Advances in the management of spasticity. Walton Rehabilitation Hospital, Augusta, GA, January 2009

Vender JR: Bridging the gap for the medically fragile child. Surgical Management of Spasticity. Walton Rehabilitation Hospital, Augusta, GA, January 2009

Alleyne CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, February 2009

Risher WC, Ard D, Yuan J, **Kirov SA**: Two-photon microscopy of the focal ischemic stroke reveals that peri-infarct depolarizations are the major cause of the secondary injury to dendrites and dendritic spines. Keystone Symposia on Axonal Connections: Molecular Cues for Development and Regeneration (Abstract), Keystone, CO, February 2009.

Kirov SA, Ard D, Yuan J, Hess DL, Kumar P, Edry J, Miller K, Hess DC, Hill WD: In vivo 2-photon microscopy reveals G-CSF enhanced mobilization and targeting of neo-endogenous bone marrow stromal cells to stroke injury sites (Abstract), International Stroke Conference, San Diego, CA, February 2009

Witcher MR, Park YD, Lee MR, Harris KM, **Kirov SA**: Tripartite CA1 hippocampal synapses in human mesial temporal lobe epilepsy. Gordon Research Conference on Glial Biology: Functional Interactions Among Glia & Neurons, Ventura, CA, February 2009

Turner MA: Cerebral aneurysms and subarachnoid hemorrhage. Physician's Assistants School, Medical College of Georgia, February 2009

Vender JR: Management of vestibular schwannomas. Masters of Otolaryngology-Skull Base Symposium, Medical College of Georgia, February 2009

Johnson-Markve, B.L., Lee, G.P., Murro, A.M., Park, Y.D., **Smith, J.R.** Prognostic Utility of a Predictive Model for Memory Decline Following Epilepsy Surgery. International Neuropsychology Society Meeting, Atlanta, GA, Feb 2009.

Vender JR: Common neurological tumors. Physician's Assistants School, Medical College of Georgia, February 2009

Alleyne CH: Neurosurgery. Neurosurgery Interest group, Medical College of Georgia, March 2009

Choudhri HF: Neurosurgery relief efforts during the Gaza crisis, Augusta Public Library, Augusta, GA, March 2009

Giller CA: Role of imaging in seizure work-up. Pool Society Conference, Medical College of Georgia, March 2009

Alleyne CH: Neurovascular interventions for ischemic and hemorrhagic stroke. Brain and Heart Attack Course. Hilton Head, SC, April 2009

Alleyne CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, April 2009

Laird MD, Sangeetha SR, **Alleyne, CH, Dhandapani KM**: Astrocyte-derived glutathione protects cerebral microvessel cells from hemin-induced inflammation and cytotoxicity. Experimental Biology Annual Meeting, New Orleans, LA, April 2009

Kimbler D, **Dhandapani KM**: Cryopyrin and IL-1beta involvement in traumatic brain injury. GA/SC Neuroscience Consortium, Athens, GA, April 2009

Vender JR: Management of intracerebral hemorrhage, Family Medicine Symposium, Augusta, GA, April 2009

Roberts S, **Vender JR**: Dental devices. American Association of Endodontists Annual Session, Orlando, FL, April 2009

Sangeetha SR, Singh N, **Vender JR, Dhandapani KM**: Anacardic acid-induced secretory pituitary adenoma cell apoptosis by down regulation of survivin. The Endocrine Society meeting, Washington, D.C., April 2009

Sangeetha SR, Singh N, **Vender JR, Dhandapani KM**: Histone deacetylase inhibitor, SAHA, induces growth arrest, apoptosis and radiosensitizes pituitary adenoma cells. The Endocrine Society meeting, Washington, D.C., April 2009

Tuttle JA, Alleyne CH: Neurosarcoidosis mimicking meningiomatosis cerebri: Case report and literature review. Georgia Neurosurgical Society Meeting, Sea Island, GA, May 2009

Youssef P, Laird MD, Alleyne CH, Dhandapani KM: Cerebrospinal fluid content of HMGB-1 predicts neurological outcome following subarachnoid hemorrhage. Georgia Neurosurgical Society Meeting, Sea Island, GA, May 2009

McCracken J, **Alleyne CH, Dhandapani KM**: Curcumin promotes hematoma resolution following intracerebral hemorrhage in mice. Georgia Neurosurgical Society Meeting, Sea Island, GA, May 2009

Alleyne CH, Laird MD, Dhandapani KM: A revised model of neurological injury after subarachnoid hemorrhage. Georgia Neurosurgical Society Meeting, Sea Island, GA, May 2009

Risher WC, Ard D, Yuan J, **Kirov SA**: Two-photon microscopy of the focal ischemic stroke reveals dynamics of the secondary injury to dendrites and dendritic spines. Gordon Research Conference: Dendrites and their Function, Barga, Italy, May 2009

Hughes M**, Vender JR**, Williams M, Cofer L: Applying radionucleotide scan evaluations to multiple sclerosis patients who are being evaluated for potential pump malfunctions: Illustrated by two patient case studies. Consortium of Multiple Sclerosis Centers, Atlanta, GA, May 2009

Hughes M**, Vender JR**, Williams M, Cofer L: Intrathecal baclofen therapy and multiple sclerosis: outcomes and patient satisfaction: revisiting the 2006 cohort. Consortium of Multiple Sclerosis Centers, Atlanta, GA, May 2009

Alleyne CH: Introduction to Neurosurgery. Surgery 5000 lecture series, Medical College of Georgia, June 2009

Choudhri HF: Management of iatrogenic cervical deformity, Riyadh Spine Club, Riyadh, Saudi Arabia, June 2009

Choudhri HF: Management of complex mass lesions at the craniocervical junction, Neuroscience Grand Rounds, King Fahad Medical City, Riyadh, Saudi Arabia, June 2009

Choudhri HF: Cervical spine instrumentation techniques. Resident Lecture and Sawbones Workshop, King Fahad Medical City, Riyadh, Saudi Arabia, June 2009

Publications

Sangeetha SR, Singh N, **Vender JR, Dhandapani KM**: Suberoylanilide hydroxamic acid (SAHA) induces growth arrest and apoptosis in pituitary adenoma cells. Endocrine 35: 389-396, 2009

Rahimi SY, Shakir AR, Alleyne CH: Brainstem compression from "kissing" vertebral arteries. Neurology 71:954, 2008

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Department of Neurosurgery
Medical College of Georgia
1120 15th Street
Augusta, GA 30912
706-721-3071

Neuroscience Outlook

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

Conference Schedule (July 2009 - December 2009)

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

Jul 10	9:00 - 10:00	Oral Board Review	
	10:00 - 11:00	Gamma Knife	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Jul 17	9:00 - 10:00	Neuro 101: Dr. Patrick Youssef	Pineal Tumors
	10:00 - 11:00	Radiology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Jul 24	9:00 - 10:00	Open	
	10:00 - 11:00	Pathology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Jul 31	9:00 - 10:00	Neuro 101: Dr. Ahmed Shakir	Acoustic Neuromas
	10:00 - 11:00	Journal Club	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	M&M	
Aug 07	9:00 - 10:00	Oral Board Review	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Aug 14	9:00 - 10:00	Radiology	
	10:00 - 11:00	Gamma Knife	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Aug 21	9:00 - 10:00	Neuro 101: Dr. Dion Macomson	Pediatric Brain Tumors
	10:00 - 11:00	Pathology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Aug 28	9:00 - 10:00	Journal Club	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	M&M	
Sep 4	9:00 - 10:00	Oral Board Review	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Sep 11	9:00 - 10:00	Radiology	
	10:00 - 11:00	Gamma Knife	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Sep 18	9:00 - 10:00	Neuro 101: Dr. Jonathan Tuttle	Kyphoplasty
	10:00 - 11:00	Pathology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Sep 25	9:00 - 10:00	Journal Club	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	M&M	
Oct 2	9:00 - 10:00	Oral Board Review	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Oct 9	9:00 - 10:00	Radiology	
	10:00 - 11:00	Gamma Knife	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Oct 16	9:00 - 10:00	Neuro 101: Dr. Cargill Alleyne, Jr.	Skull-based Tumor Surgery
	10:00 - 11:00	Pathology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	M&M	
Oct 23	9:00 - 10:00	Journal Club	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	M&M	
Oct 30	NO CONFERENCE (Thanksgiving)		
Nov 6	9:00 - 10:00	Oral Board Review	
	10:00 - 11:00	Anatomy	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Nov 13	Resident Interviews		
Nov 20	Resident Interviews		
Nov 27	NO CONFERENCE (Thanksgiving)		
Dec 04	Resident Interviews		
Dec 11	9:00 - 10:00	Journal Club	
	10:00 - 11:00	Gamma Knife	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	
Dec 18	9:00 - 10:00	Neuro 101: Dr. Haroon Choudhri	Spine Surgery in the Chronic Pain Patient
	10:00 - 11:00	Pathology	
	11:00 - 12:00	Spine Conference	
	12:00 - 1:00	Case Conference	

Upcoming Meetings (July 2009 - December 2009)

Society of Neurointerventional Surgery Meeting
7/27-31, Boca Raton, FL

Research Update in Neuroscience for Neurosurgeons
10/17-24, Woods Hole, MA

Congress of Neurological Surgeons
10/24-29, New Orleans, LA

American Board of Neurological Surgery (Orals)
11/10-13, Houston, TX

North American Spine Society
11/10-14, San Francisco, CA

Georgia Neurosurgical Society
11/21, Atlanta, GA

AANS/CNS Section on Pediatric Neurological Surgery
12/1-4, Boston, MA

Credits

Editor-in-chief: **Cargill H. Alleyne, Jr., M.D.**
Illustration, design and layout: M**ichael A. Jensen, M.S.**
Cover art: **Steven J. Harrison, Ph.D., C.M.I., F.A.M.I., F.B.P.A.**

MCGHealth
Neuroscience Center

For Information or inquiries:

please call
(706) 721-3071

or e-mail Christopher Bonham
cbonham@mcg.edu

www.mcg.edu/som/neurosurgery

This issue's cover illustration depicts a giant aneurysm in the left temporal fossa. See the article, "Treatment of complex cerebrovascular lesions", by Cargill H. Alleyne, Jr., M.D. on page 3. The illustration is by Steven J. Harrison, Ph.D., C.M.I., F.A.M.I., F.B.P.A., Chairman of the Department of Medical Illustration at the Medical College of Georgia. The artwork utilizes watercolor pencils and gouache as the painting media.