

Chairman's Message

by Jon Friedman, MD



Changes are underway for the AANS Annual Meeting. At the request of AANS President-Elect Troy Tippet, and under the direction of Dr. Timothy Mapstone, an ad hoc committee recently explored opportunities to change, improve, and refine the AANS meeting to better meet the dynamic and changing needs of its members. An important part of this membership are young neurosurgeons, including residents, fellows, and neurosurgeons in their first 5 years of practice.

The Ad hoc committee sponsored a survey of the memberships to solicit input regarding changes and canvas the membership regarding changes being considered. The results were enlightening and will inform future changes. As you might imagine, dramatic changes such as moving the meeting start to a Friday, or moving from the paper program to a paperless program using digital media, are a little scary to consider and downright frightening to implement. Nevertheless, a consistent effort to keep the meeting vibrant and meet the needs of the membership is vital.

Numerous sessions and events are geared to the needs of young neurosurgeons. Several practical clinics are free to residents and fellows over the weekend, including a practical course on "neurosurgery in the real world" coordinated by the Young Neurosurgeons Committee of the AANS. Several breakfast seminars during the week are targeted towards young neurosurgeons. The annual young neurosurgeons luncheon is regularly held on Monday of the meeting, and always features one of the giants in neurosurgery sharing their insights and perspectives on practice, professionalism, and sometimes life in general.

The Young Neurosurgeons Committee of the AANS meets on Monday evening. While committee members are elected by their peers, all young neurosurgeons (residents, fellows, and neurosurgeons in their first 5 years of practice) are welcome to attend and make sure their priorities are represented. This is a primary forum by which young neurosurgeons can bring important issues to be represented within organized neurosurgery. Equally important, the committee serves a role to communicate priorities and initiatives of the AANS back to the young neurosurgery membership.

I look forward to seeing you at the AANS. Now is the time to make your priorities and desires with respect to changes in the AANS annual meeting known, and to participate in the organized activities of young neurosurgeons in the AANS.

NREF Silent Auction

by Dan Sciubba, MD

Established by the **Neurosurgery Research and Education Foundation (NREF)** of the American Association of Neurological Surgeons in 1983, the Research Fellowship provides training for neurosurgeons who are preparing for academic careers as clinician investigators. In an ongoing effort to supplement shrinking research grant support, the NREF together with the Young Neurosurgeons Committee is again hosting the 2009 Silent Auction at this year's AANS Annual Meeting to be held in San Diego, California. The Silent Auction represents the NREF's biggest fundraising event of the year with one hundred percent of the proceeds directly supporting the NREF research grants.

Through the generosity of multiple donations, both private and corporate, multiple items will be auctioned online at www.aans.cmarket.com during the meeting in San Diego. Items range from electronics to fine art to

neurosurgical texts to vacation trips. All collections go directly to the support of NREF grants. Support can be provided via donation of items or monetary gifts to the Silent Auction or via purchase of the items set to be auctioned. In these trying economic times, we appreciate any support for these remarkable grants, which may ultimately allow young neurosurgeons the means to make significant contributions to neurosurgical research.

Washington Committee Report

by Jon Friedman, MD

The Joint Washington Committee of the AANS/CNS met in Washington D.C. on February 13, 2009.

Legislative Contacts

Members of the Washington Committee visited congressional offices prior to the WC meeting, to discuss health related topics relevant to neurosurgeons. This included Senators Kyl, Nelson, Alexander, and Brown. At the Committee meeting, Jim Bentley, Senior Vice President for the American Hospital Association spoke to the group regarding the AHA's top priorities for 2009 and areas of overlap and potential collaboration with organized neurosurgery. The issues of concern to the AHA include resident work hour restrictions, efforts to lift caps on postgraduate residency positions, and ongoing discussion of recognition of specialized practice.

The Joint Surgical Advocacy Conference will be March 22-24 in Washington D.C. The meeting is jointly sponsored by the AANS and CNS, along with 12 other surgical societies. The meeting will focus on organizing grass roots advocacy, and engaging with members of congress and the Obama administration.

New Administration Leadership and Legislative Agenda

No new nominee for Secretary of HHS has been identified or discussed informally since the withdrawal of Tom Daschle's nomination. Mr. Daschle was also to serve as the White House Director of Health Reform, which also remains vacant.

The recently passed stimulus bill included significant components affecting health policy. A combination of bonuses and penalties from medicare were instituted with respect to electronic medical record keeping by physicians. An important point of controversy exists with respect to which the health information technology regulations would allow the federal government to establish clinical guidelines which may dictated payment for services. Additional components of the stimulus bill related to health care include subsidies for COBRA, funding to states to support Medicaid, and increased NIH funding.

Congress passed MIPPA which replaced the 10.6 percent pay cut beginning in 2008 with a 0.5 percent increase in 2008 and a 1.1 percent increase in 2009. A projected cut based on the sustainable growth rate formula of 21% is scheduled for 2010. Many proposals for medicare payment reform are circulating involving replacing the sustainable growth rate formula, some of which include substantial and dramatic changes to enhance funding of primary care physicians – for budget-neutral proposals, this would involve similarly dramatic changes to reduce funding of specialty physicians and surgeons.

Momentum for a separate large scale health reform bill seems to have been arrested by the economic crisis and recent stimulus package. No appetite seems to exist for medical liability reform in this legislative session. Current structure and investment by organized neurosurgery in ongoing advocacy efforts for liability reform are being revisited.

Resident Training

The Institute of Medicine has generated a report recommending further changes to resident work hour and duty restrictions, including:

- Maximum shift of 16 hours, 30 hours if 5 protected hours of sleep obtained.
- Maximum call frequency every 3rd night
- Minimum time off 10 hours between shifts
- Mandatory time off 5 days per month, 1 day per week
- Previously considered proposals to reduce work hours to 56 hours per week were not included in the final report. Organized neurosurgery was active in the debate on this issue.

The Washington Committee supports creation of a Neurosurgical Education and Training Task Force composed of presidents, presidents-elect, and other representatives of major neurosurgical societies.

Coding and Reimbursement

New stereotactic radiosurgery codes reflecting head frame placement, multiple lesions, spinal lesions, and complex lesions were implemented in 2009. Work values and payments for these codes was a topic of significant controversy and the CMS implementation was substantially different than the work values advocated by the RUC. CMS is currently assessing new codes for body radiosurgery for surgeons and radiation oncologists.

Military Neurosurgery in Support of Operation Enduring Freedom (OEF)

by Paul Klimo Jr., MD, MPH (USAF) & Brian Ragel, MD (USAF)

Afghanistan is a landlocked and mountainous country in South-Central Asia with an estimated population of over 32 million. It is bordered by [Pakistan](#) in the south and east, [Iran](#) in the south and west, [Turkmenistan](#), [Uzbekistan](#) and [Tajikistan](#) in the north, and [China](#) in the far northeast. At 249,984 sq mi, Afghanistan is almost as large as the state of Texas. It has a continental climate with hot summers and cold winters. Its unforgiving terrain is mostly rugged mountains, dominated by the Hindu Kush range, with the highest peak reaching almost 25,000 feet. There are other connected mountain ranges along with plains in north and southwest and large areas of sandy desert near the southern border with Pakistan.

America's military involvement in Afghanistan under the code name Operation Enduring Freedom (OEF) began on October 7th 2001 when land-based bombers, carrier-based fighter bombers and Tomahawk missiles soared over the Hindu Kush en route to Taliban targets. In the ensuing months, coalition forces successfully ousted the Taliban regime and the al-Qaida terrorists that they supported from Afghanistan. Unfortunately, in the more than seven years since these initial victories, the war effort has bogged down, and a resurgent Taliban has stepped up its attacks, particularly in southern Afghanistan, and civilian and military casualties are at record levels.

The first medical assets in 2001 consisted of two Forward Surgical Teams (FST), one located in Bagram and the other in Kandahar. Since 2001, a large network of Forward Operating Bases (FOBs) and Combat Support Hospital (CSHs) has been established across the country with varying degrees of medical capabilities. All surgical assets within Afghanistan are co-located with medevac assets to provide the quickest and most efficient means to transport injured troops. Secretary of Defense Robert Gates has mandated that the time from the point of injury-to-surgeon be one hour or less, known in military circles as the "golden hour".

Although combat and medical operations have been ongoing since 2001, American neurosurgical presence in theatre (“boots on the ground”) did not occur until October 2007. The reasons for this are two-fold. First, neurosurgical cases during the first several years were infrequent and in fact, cases that did require surgical intervention were often performed by general surgeons or ENT surgeons. Some of these surgeons had participated in a combat course on emergent neurosurgical procedures such as burr holes, basic craniotomy techniques and insertion of intracranial pressure monitors. The second reason was that the much bloodier conflict in Iraq (Operation Iraqi Freedom) overshadowed OEF and Air Force and Army neurosurgeons were being deployed there. Although the Army continues to deploy neurosurgeons in the much stabilized Iraq theatre, the conflict in Afghanistan has dramatically escalated and has taken center stage. In the face of mounting combat casualties, the Air Force responded by providing neurosurgical assets to the largest military medical facility in the Afghan operational theatre, the Craig Joint Theatre Hospital (CJTH) in Bagram (Fig 1).



Fig. 1 The Craig Joint Theatre Hospital

Bagram Air Field (BAF) is a militarized airport and housing complex that is 60 kilometers north of Kabul next to the ancient city of [Bagram](#) in the [Parwan province](#) of [Afghanistan](#). Bagram Air Base actually played a key role during the [Soviet occupation of Afghanistan](#) from 1979 to 1989. In fact, some of the buildings that were built by the Russians are still in use by the US military today. The military hospital, CJTH, is designated as a Level 3 military hospital. Unlike civilian trauma facility designations in the United States, a higher number indicates greater capabilities. For example, a level 1 military facility is a simple aid station and level 2 is a brigade aid station. An example of a level 4 facility is the large Army/Air Force hospital in Landstuhl, Germany and Level 5 facilities are large medical centers in the United States such as Walter Reed Army Hospital and Bethesda Naval Medical Center.

CJTH has the ability to care for virtually all traumatic injuries. The available specialties include general surgery, plastic surgery, ophthalmology, ENT, orthopedic, internal medicine, emergency medicine, pediatrics, family practice and internal medicine (Fig 2). There is an ER with a 6 bed trauma bay, a 15-bed ICU and a 25-bed ward. The primary mission is to provide care for all American and NATO troops. Secondary missions include caring for injured Afghan National Army and Police (ANA, ANP) soldiers, and local nationals who were injured by coalition weaponry. The tertiary or humanitarian mission is to provide care for local nationals with non-battle traumatic injuries, and non-traumatic pathology. This last mission is highly dependant on the complexity of the individual case, the available medical assets and the tempo of combat injuries.



Fig. 2 The physicians of CJTH

Combat related injuries are dependant on weather and in general, there are fewer injuries during the late fall/winter months compared to spring/summer. However, it is clear that the number of improvised explosive device (IED) attacks has grown steadily over the years. IEDs are the top killer of U.S. troops in Afghanistan and the number of injuries from them are increasing. In 2008, 3,276 IEDs detonated or were detected before blowing up in Afghanistan, a 45 percent increase over 2007, and a record for the war. Makeshift bomb attacks in Afghanistan killed three times as many coalition troops in the first two months of 2009 compared with the same period last year. The increase in IED attacks could foreshadow a violent spring and summer as 17,000 more U.S. troops arrive in Afghanistan to bolster the force of 38,000 there now.

Since October 2007, the Air Force has been rotating a single neurosurgeon to Bagram for a 4 to 6 month deployment. The neurosurgeon provides 24 hour, 7-days a week coverage for the duration of their deployment. Virtually all patients come by air (either fixed wing or helicopter) and many have already been evaluated and treated to some degree by a FST. Except for a relatively small number of cases (primarily civilians) seen at Kandahar by a neurosurgeon provided by the British military, most patients with significant neurotrauma (and all American soldiers) are sent to Bagram. Our goal with American and NATO soldiers are to stabilize them as soon as possible so they can be airlifted to Germany. This typically occurs within 24 hours of arrival. The local nationals and ANA/ANP patients stay with us until they can be transferred to Afghan hospitals. But given the very poor conditions of these hospitals, we typically keep these patients until they are almost ready to be discharged home.

Blast injuries from IEDs result in multiple metallic fragments along with bone and other debris such as mud and rocks penetrating the brain. There are often extensive soft tissue facial and scalp injuries. High velocity guns shot wounds, most often from the 7.62x39mm cartridge used in AK-47s, can cause devastating injuries. Our philosophy for treating penetrating injury is to be as aggressive as possible with the primary surgery. This entails debriding the cortex and tract as much as possible, evacuating intra and extraaxial hematomas that have significant mass effect, performing a dural augmentation and having a low threshold to leaving the bone flap off. This last maneuver has proved invaluable in the management of postoperative intracranial pressure. Bone flaps on American troops are discarded as they will receive prosthetic implants once they reach a Level 5 medical center in the United States. Bone flaps on ANA/ANP and local nationals are stored in a freezer and re-implanted typically 2-3 months after injury.

Case 1. This 22 year-old ANA was involved in a firefight and suffered a gunshot wound to the right temple by an AK47. His CT demonstrated a hemorrhagic tract through the right temporal lobe with bullet coming to rest in his occipital lobe (Fig 3). Patient was taken to the OR for debridement and temporal lobectomy. Severe swelling was encountered upon opening of the dura and the bone flap was left off (Fig 4). An immediate post-op CT scan showed that he had developed a large hyperacute subdural hematoma on the left side (Fig 5). He was immediately returned to the OR and underwent a left craniotomy for evacuation of the subdural.

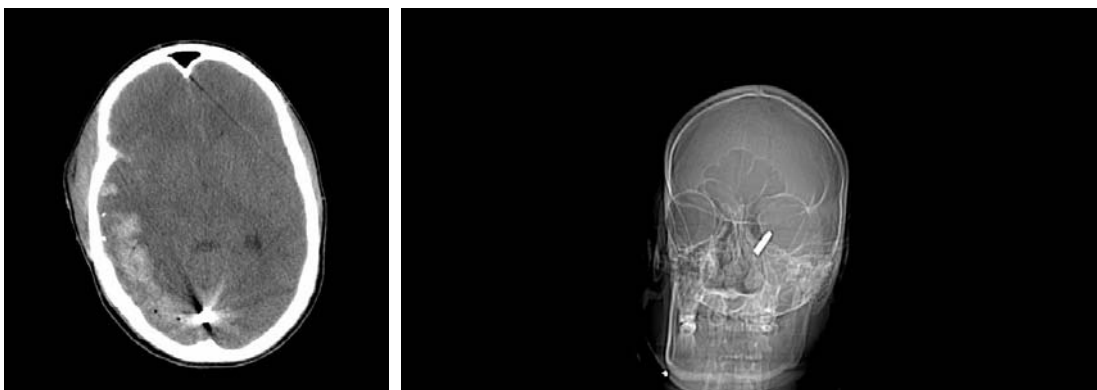


Fig 3. Case 1. Axial CT (a) and AP scout (b) showing the path and final position of the AK47 round.



Fig 4. Case 1. Severe swelling of the right hemisphere.

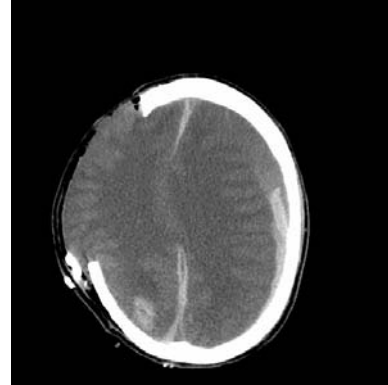


Fig. 5 Case 1. Immediate postop CT showing new large left subdural hemorrhage.

We have also seen a number of penetrating spinal injuries. These are quite different than the rare penetrating spinal injury seen in the United States by low velocity bullets or stab wounds. The injuries seen here are most often caused by high velocity rounds that cause extensive damage to thoracic and abdominal structures in addition to the spine. The bullet's path of destruction is extensive and causes fragmentation of the bony spinal column. Many patients unfortunately have complete neurologic injuries. Dural tears with CSF-cutaneous fistulas via the bullet track are difficult to manage. These patients are often the sickest in the hospital as a result of the many injuries sustained to the thorax or abdomen and the infectious complications that almost inevitably ensue. Spinal instrumentation and fusion is performed on those patients whose injuries are thought to be unstable usually in a delayed fashion once the patient is stable from their other life threatening injuries.

Case 2. 26 yo American soldier was shot through the left flank. The bullet destroyed his left kidney, injuring his colon, spleen, then passing through the body of L2, injuring his right kidney and fragmenting into a number of smaller pieces on the right flank (Fig 6). The patient required two emergent laparotomies at an outside FOB and another upon arrival to Bagram. Unfortunately, the patient suffered a complete motor and sensory neurologic injury. The patient was transferred to Landstuhl Medical Center within 24 hours and then to Walter Reed several days later.

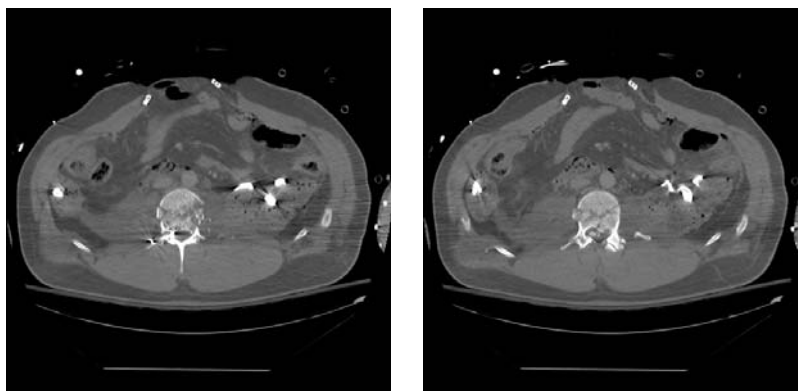


Fig. 6 Case 2. The L2 body is comminuted with severe retropulsion of bone fragments(a) and shrapnel (b).

As stated previously, local nationals without combat-related injuries can receive care but on a case-by-case basis. In general, only those patients that we feel we can truly help are offered surgery. Civilian non-combat traumatic injuries such as motor vehicle accidents and falls were cared for during the first several rotations of neurosurgeons, but these cases have since been all but denied as a greater focus has been placed on reserving our resources for battle injured soldiers. Nonetheless, a number of local nationals have benefitted from our presence and have received surgeries such as spinal fusions traumatic fractures and osteomyelitis (typically from untreated tuberculosis, or Pott's disease), craniotomies for brain tumors, lumbar discectomies and decompressions for degenerative spinal disease and closures of myelomeningoceles.

Case 3. This 15 month old infant was born with a myelomeningocele that was left untreated and progressively increased in size. At presentation, the mass was covered with very thick, hypertrophied skin in some areas and in others there was skin breakdown from chronic pressure (Fig 7). The child had subtle hip flexor function, but otherwise no motor and sensory function. Intraoperatively, the patient's spinal cord was transected immediately above the deformity with the dura oversewn. The large defect required a latissimus and gluteal myofascial rotational flaps to provide coverage (Fig 8). The child developed hydrocephalus postoperative and required placement of a shunt.



Fig. 7 Case 3. Large untreated lumbar myelomeningocele.



Fig. 8 Case 3. Appearance after rotational myofascial wound closure.

Air Force neurosurgeons in Afghanistan are performing life-saving cranial and spine stabilization procedures for battlefield trauma and acting as general neurosurgeons for the Afghan community. As the conflict here continues to expand, there will inevitably be a continued need for our presence and this will most likely translate into a long-term mission. A paper that details the preliminary experience of Air Force neurosurgeons in Bagram is currently under review and we hope to have it published soon.

Questions and Answers Regarding the Neurosurgical Residency Match Process

by Jay Jagannathan, MD

As of the 2008-2009 match cycle, neurosurgery changed from an early match to the NRMP match. Below, we discuss some of the common questions and answers regarding the new match process.

What is NRMP?

The National Resident Matching Program is a non-profit organization established in 1952 to help match and provide a uniform date of appointment for Graduate Medical Education trainees.

What is ERAS?

ERAS stands for Electronic Residency Application System. It is a service that transfers applications, application materials, and supporting documents to the programs where you are interested in applying. ERAS consists of MyERAS (applicant portal), the Dean's office workstation (Medical School portal), the Program Director's workstation (Program's portal) and the post-office (databank that transfers information from the dean's office to the programs of interest).

How does this process work?

- (1) Applicants get an electronic token from their dean's office. This will allow applicants to log into MyERAS, the application portal.
- (2) Applicants complete the residency application and provide supporting documents including letters of recommendation, supporting documents, etc.
- (3) Programs contact the ERAS office periodically to download application materials.

What are the important dates with the new match process?

Mid-late June: ERAS Applicant users guide is made available.

July: MyERAS website (<https://services.aamc.org/eras/myeras/>) is open.

August: Applicant registration begins.

September: Institution/program registration begins. ERAS post-office opens.

November: Applicant registration deadline (a late fee of \$50 must be paid after this date) for applicants who register. **NOTE:** Some individual programs will have earlier deadlines (for individual program deadlines see <http://www.societyns.org/2009%20US%20Neurosurgery%20Program%20Interview%20dates.xls>).

January: Rank lists can be submitted.

February: Applicants and programs must certify their rank order lists.

March: Applicants matched and unmatched will be posted to the website

March: Match Day...Match results for applicants posted.

March: Hospitals send letters of appointment to matched applicants after this date.

Are there registration fees?

The NRMP registration fee for all applicants is \$40.00 through November 30. Registrations completed after November 30 will be accepted with an additional \$50.00 late fee until the rank order list deadline in February. For the couples match, there is an additional \$15 charge for each partner. Additional fees will be made for **more than 20** programs for single applicants and **more than 30** programs for each partner of a couple.

ERAS charges processing fees based on the number of programs applied to per specialty. Refer to page 28 of the *ERAS 2009 – MyERAS User Guide (Residency)* at <http://www.aamc.org/students/eras/resources/downloads/2009myerasresidency.pdf>.

When will programs grant interviews?

For tentative interview dates, see <http://www.societyns.org/2009%20US%20Neurosurgery%20Program%20Interview%20dates.xls>. The interview cycle can be highly variable, as some programs have not adjusted to the new ranking system. The best way of checking for interview dates is by contacting the individual program of interest.

How does the NRMP match accommodate couples who are matching?

This may be easier logistically than the early match. The NRMP allows two individuals to form pairs of choices on their primary rank order lists which are then considered in order of preference when the matching algorithm is run. The algorithm considers only a couple's primary rank order lists when attempting to find a match. For more information see http://www.nrmp.org/res_match/special_part/us_seniors/couples.html

Can a rank-list be changed?

The rank-list can be changed until 9 pm on the deadline for rank-list entry.

How do applicants know if they have matched?

At 12 pm on the Monday of Match Week, applicants can find out if they matched by logging into the NRMP website.

How do applicants know if they have not matched?

Unmatched applicants who certify a rank list will be given access to a list of unfilled programs at noon eastern time on Tuesday of Match Week.

NOTE: Applicants may not contact unfilled programs prior to noon that Tuesday!

Where can I find more information?

The Society of Neurological Surgeons website related to the match is

http://www.societyns.org/match_information.html

The ERAS website is www.aamc.org/audienceceras.htm

The NRMP website is www.nrmp.org

Medical Student Travel Award

by Eve Tsai, MD

The Young Neurosurgeons Committee (YNC) continues to strive to support Young Neurosurgeons and Young Neurosurgeons-to-be. Recently, we worked to create and support the medical student abstract award which is awarded for the best abstract submitted by a medical student to the annual American Association of Neurological Surgeons (AANS) meeting. Last year's winner was Christopher Paul Kellner, a medical student from Columbia University College of Physicians and Surgeons. He is now a first year neurosurgery resident at Columbia University Medical Center in New York, New York. Dr. Kellner reports that the award "motivated me to continue pursuing research as a resident" and that "it was a great honor".

To continue to encourage more of the best and the brightest medical students into neurosurgery, the AANS and YNC have also worked to provide travel scholarships for medical students. As many of us on the YNC were recent medical students, we realized that as a medical student there may be a significant financial hardship to attend the annual meeting. To nurture and support these medical students who have shown great promise in neurosurgery,

we have spearheaded an effort to create a travel scholarship for medical students. We are proud to announce that the AANS has approved our proposal for a \$2500 Medical Student Travel Scholarship to be awarded to the medical student who has won the best medical student abstract award for the meeting. In addition, all medical students who have won the AANS Medical Student Summer Research Fellowship will also receive a \$2500 Travel scholarship to attend the meeting if their abstract is accepted at the annual meeting.

To apply for these travel awards, medical students must submit their abstracts to the annual meeting. The next Annual Meeting will be held in Philadelphia, Pennsylvania from May 1 - 6, 2010. Abstracts can be submitted between May 18 and September 18, 2009 at <http://www.aans.org/annual/default.asp>.

The YNC is always looking to improve our support of Young Neurosurgeons and Neurosurgeons-to-be. If there are any suggestions to improve our support, please let us know by emailing us at cap@aans.org.

Book Reviews

Photo Atlas of Skull Base Dissection: Techniques and Operative Approaches
by Masahiko Wanibuchi, MD PhD, Allan Friedman, MD FACS, Takanori Fukushima, MD

Reviewed by Albert H Kim, MD, PhD and Edward R. Smith, MD

With continuing advances in imaging, radiation therapy, endovascular techniques, and tumor as well as vascular biology, the field of skull base has clearly become increasingly multidisciplinary. Yet microsurgery continues to play a major role in the management of skull base lesions despite the neurovascular pitfalls inherent to surgical attack of such deep-seated lesions. Skull base surgery has progressed considerably in the past few decades as an increasing knowledge of microsurgical anatomy has improved operative technique (Harris and Rhoton, 1975; Fisch and Pillsbury, 1979; Dolenc, 1983; Sekhar and Jannetta, 1984). Current surgical techniques, as exemplified by more precise intraoperative neuronavigation imaging and modern skull base approaches, have substantially decreased the operative morbidity and mortality for the technically challenging skull base lesions (Prabhu and Demonte, 2003).

The *Photo Atlas of Skull Base Dissection: Techniques and Operative Approaches* by Fukushima and colleagues is an important contribution not only to neurosurgery but also other surgical disciplines that demand careful navigation in and around the skull base, including otorhinolaryngology, ophthalmology, and craniofacial surgery. The authors thoughtfully present the details of operative skull base corridors through cadaveric dissection in a logical, anatomically organized manner and demonstrate nuanced expertise in the array of approaches described.

Each chapter begins with a terse list of indications of the approach described followed by a short list of the major steps of the operation. What then follows is a photographic series of meticulous, step-by-step dissections, as it would play out in the operative approach. Each photograph is accompanied by a brief figure legend identifying relevant anatomy and at times providing a clinical pearl relevant to that particular step of the approach. Occasionally, as in Chapters 10, 13, and 18, schematic illustrations help to delineate the main anatomic features. The diagrams, most extensive in Chapter 13—"Anatomy for the Posterolateral Skull Base," are especially useful as they underscore key neurovascular relationships. Particularly impressive is the extensive detail given to soft tissue structures surrounding the cranial vault, which are often dealt with in a cursory fashion in similar neurosurgical texts. Again this speaks to the utility of this anatomic text to surgeons who inhabit non-neurosurgical fields.

A few points can be suggested to improve the book, but these do not in any way diminish enthusiasm for this valuable text. For instance, some of the approaches begin well into the dissection, and thus, a diagram or photograph zoomed out beyond the operative field to orient the reader would be helpful. Additionally, schematic

illustrations as in the chapters mentioned above could be used in other parts of the book to highlight important anatomic relationships.

Overall, this photographic atlas provides a comprehensive yet eminently readable review of skull base operative approaches. This text is valuable to experienced surgeons who desire a microsurgical reference. For surgical trainees, the book is an indispensable companion along the path of mastery of a technically challenging anatomic area.

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[Operative Techniques in Epilepsy Surgery](#)

by Gordon Baltuch, MD PhD (Editor), Jean-Guy Villemure, MD (Editor)

Reviewed by: Peter Kim, MD

Epilepsy surgery has been performed for many years, and recently there has been an intensification in interest due to controlled trials supporting the efficacy of early epilepsy surgery (1,2) as well as reports describing the economic advantages of surgical versus medical therapy (3). Surgical treatment of epilepsy has been referred to as one of the most underused successful treatments in medicine (4). At the same time, the application of modern functional techniques and radiosurgery to the field of epilepsy surgery have resulted in the introduction of more recent surgical innovations that have allowed for surgical treatment of patients who were not previously surgical candidates or who may have failed previous surgical therapy. Some of these techniques such as vagal nerve stimulation and radiosurgery have become well established options for treatment of refractory epilepsy while others remain restricted to specialized centers.

Operative Techniques in Epilepsy Surgery (Gordon H Baltuch and Jean Guy Villemure editors *New York Thime*, 2009, 206 pages ISBN 978-1-60406-030-0) serves as a primer on the various surgical options available to the epilepsy surgeon, a guide to technical aspects of the procedures, and finally as an update on present surgical innovations within the field. Covering topics that include established procedures such as temporal lobectomy and corpus callosotomy, as well as recent and experimental procedures such as deep brain stimulation and responsive closed loop stimulation, this book is highly readable and provides an excellent overview of the various surgical techniques, as well as details of peri-operative care, complications and outcomes. The color illustrations are plentiful and complement the text and are a strength of the book. Additionally most chapters are well referenced with up to date citations.

The book begins with a chapter on image guidance in epilepsy surgery, and provides a brief history of frame based and frameless stereotaxy and the author's preferences for use of image guidance in all facets of epilepsy surgery. Two chapters on invasive monitoring follow. A detailed description of non invasive monitoring techniques and other pre-surgical diagnostic modalities either as a stand alone chapter or embedded within these two chapters would have been useful to offer a more complete understanding of the indications for invasive monitoring. (An overview of nonsurgical diagnostic options is presented in a chapter on cortical resections of the frontal, parietal and occipital lobe and once again in a chapter on motor, sensory and language mapping.)

Despite the fact that 16 of the book's 33 listed authors are from three major epilepsy centers, there is a somewhat discordant style. The chapter on temporal lobectomy and amygdalohippocampectomy is written in the second person and starts by describing the operating room layout and proceeds as an instruction manual of the procedure with inclusion of operative nuances that the authors believe are pertinent. The following companion

chapter on selective amygdalohippocampectomy by contrast is written in the traditional passive voice and starts with an introduction and history of temporal lobe epilepsy surgery, followed by a review of the pertinent anatomy and a rationale for surgical approach and finally concludes with a more concise description of the surgical procedure. Chapters on cortical resection in the central region, cortical resection in the frontal parietal and occipital lobe, insular resection, hypothalamic hamartomas and multiple subpial transections complete the section on resective epilepsy surgery. The chapter on insular resection provides a particularly useful background to the topic, but offers less surgical detail than earlier chapters.

The only disease- centered chapter in the book, on hypothalamic hamartomas, provides an introduction to this entity including description of the surgical approaches as well as a description of preoperative diagnostic workup, functional and surgical anatomy, and even molecular genetics and histology. This chapter could easily serve as a stand alone review on the subject, and is certainly useful, although one wonders at the lack of similar coverage of more common surgical targets such as low grade gliomas, cavernous malformations, or mesial temporal sclerosis.

The organization of the chapters within the book is occasionally disconcerting. The 20 chapters are grouped into 5 sections: surgical planning, cortical resection, intraoperative mapping, neuromodulation and radiosurgery- the latter comprised of one chapter. The section entitled intra-operative mapping contains the chapters on corpus callosotomy, anatomical hemispherectomy and functional hemispherectomy, which would to this reader, have made more sense as a separate section grouped after the chapters describing resective epilepsy surgery. The chapters that are truly dedicated to intraoperative mapping are quite useful in introducing theory as well as offering practical details, including a description of anesthetic considerations. The chapter on corticography, which contains in depth discussion of electrophysics of stimulation provides important information, however the amount of detail provided here seems to temporarily alter the scope of the book.

The chapters on non resective surgery offer particularly thorough descriptions of the surgical procedures, which is useful as many of the readers are less likely to be familiar with these operations. The pairing of chapters on anatomic and functional hemispherectomy are reminiscent of the earlier pairing of amygdalohippocampectomy and selective amygdalohippocampectomy and provide a useful comparison of the two approaches including respective indications and drawbacks of each procedure.

A section on neuromodulation contains chapters on vagus nerve stimulation, stimulation of the amygdala and hippocampus, deep brain stimulation, and responsive stimulation. The relative brevity of the book (20 chapters in just over 200 pages) seems to lend itself best to these chapters that serve as overviews of the more novel techniques. Chapters covering deep brain stimulation and responsive stimulation are particularly useful, introducing techniques that may be less familiar to the target audience.

The final chapter, dedicated to radiosurgery for epilepsy, is a concise but useful review of the subject. The authors alternate between general considerations and their own experience, which is extensive and useful in relaying practical details of the procedure.

Overall the book serves as an excellent overview of the techniques of epilepsy surgery, striking a balance between readability and details of surgical nuance. It will serve as a valuable reference for anyone interested in epilepsy surgery as well as general neurosurgeons and neurologists seeking to become more familiar with both established techniques as well as recent advances in this exciting field.

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[Surgery of the Pediatric Spine](#)

By Daniel H. Kim, MD FACS, Randal R. Betz, MD, Stephen L. Huhn, MD, and Peter O. Newton, MD

Reviewed by: Eric Hintz, MD and G. Edward Vates, MD

An often repeated mantra of Pediatricians is that children are not simply little adults. This statement includes the spine., so it is somewhat surprising that there are notably few books dedicated to pediatric spinal disorders relative to the number of spine texts overall. *Surgery of the Pediatric Spine* was written to help fix this. The 896-paged volume is jointly edited by neurosurgeons and orthopedic surgeons, with contributions from leaders in both specialties.

More than an operative atlas, the book claims to be “a single volume reference for managing pediatric spine disorders and disease.” To this end, the text contains chapters on embryology, biomechanics, neuroimaging, anesthesia, anatomy, and rehabilitation. While these chapters are worthwhile, for most neurosurgeons and neurosurgical trainees the most valuable chapters are those dedicated to spinal pathology and its management. The information is thorough, with sections dedicated to congenital/developmental disorders, neoplasms, vascular malformations, inflammatory and infectious diseases, neuromuscular diseases, and spine trauma. Also included is a 17-chapter section, the book’s largest, on special techniques for treatment of spine deformity. Included here are chapters on both fixed and growing-rod scoliosis instrumentation and fixations utilizing the occiput and sacropelvis. Many of the techniques presented within this section have traditionally been the domain of orthopedics and may be of secondary interest to those with a neurosurgical background.

Chapters are of variable format but are logically constructed to provide a broad overview of clinical presentation, diagnostic approach, and available treatment. Numerous clinical cases are included to highlight particular challenges. The text is supplemented with over 1000 black-and-white images and 73 tables. Chapters are generously augmented with references, with many chapters citing over 100 articles.

The broad subject coverage and detailed, well-researched chapters combine to form a fine text that offers readers a thorough understanding of pediatric spine disease and its current management.

[Neurosurgical Operative Atlas: Vascular Neurosurgery](#)

Editor/Author: R. Loch Macdonald, MD, PhD

Reviewed by: Eric Hintz, MD and G. Edward Vates, MD

Vascular Neurosurgery is the recently released 296-paged volume in the second edition of the five-volume *Neurosurgical Operative Atlas* series, edited by Dr. R. Loch Macdonald and co-published by Thieme and the American Association of Neurological Surgeons. The stated goal of the *Atlas* series is to encapsulate the entire spectrum of neurosurgical disease; accordingly, *Vascular Neurosurgery* strives to include all facets of vascular neurosurgery within 38 chapters divided among three sections: Aneurysms/ Subarachnoid Hemorrhage, Vascular Malformations, and Ischemic/Other Cerebrovascular Diseases.

Chapters, written by leaders in the field of cerebrovascular disease, are composed using a standardized format, with sections covering Patient Selection, Preoperative Preparation, Operative Procedure, and Postoperative Management. The contents of these sections vary with each chapter, but are generally well thought out. Within the Operative Procedure section, authors consistently provide detailed instructions on patient positioning, approach, and microsurgical techniques. These instructions are typically augmented with copious diagrams and photographs,

many of which appear in full color. Common operative pitfalls and means to avoid them are generously peppered throughout.

One of the strengths of the book is the brevity with which the authors provide an overview of operative vascular neurosurgery. Each chapter is sufficiently short that it can be carefully read in 30 minutes or less, affording time-strapped surgeons (or especially residents) the opportunity to review a disease quickly.

Brevity is also one of the weaknesses of the text. The chapters are by no means exhaustive in their scope; thus, those who wish to delve deeply into a given neurovascular disease should look elsewhere. This conciseness is heightened by the lack of literature citations. In the jargon of evidence-based medicine, this places the information presented in the book at Level 5 evidence, i.e. expert opinion, although it is likely that most of the guidance here is based on better data that just is not cited.

Vascular Neurosurgery is a valuable addition to the library of any neurosurgeon who wishes to have a concise and comprehensive reference of neurovascular operative management.

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Please direct any comments or suggestions for future articles to cap@aans.org.
