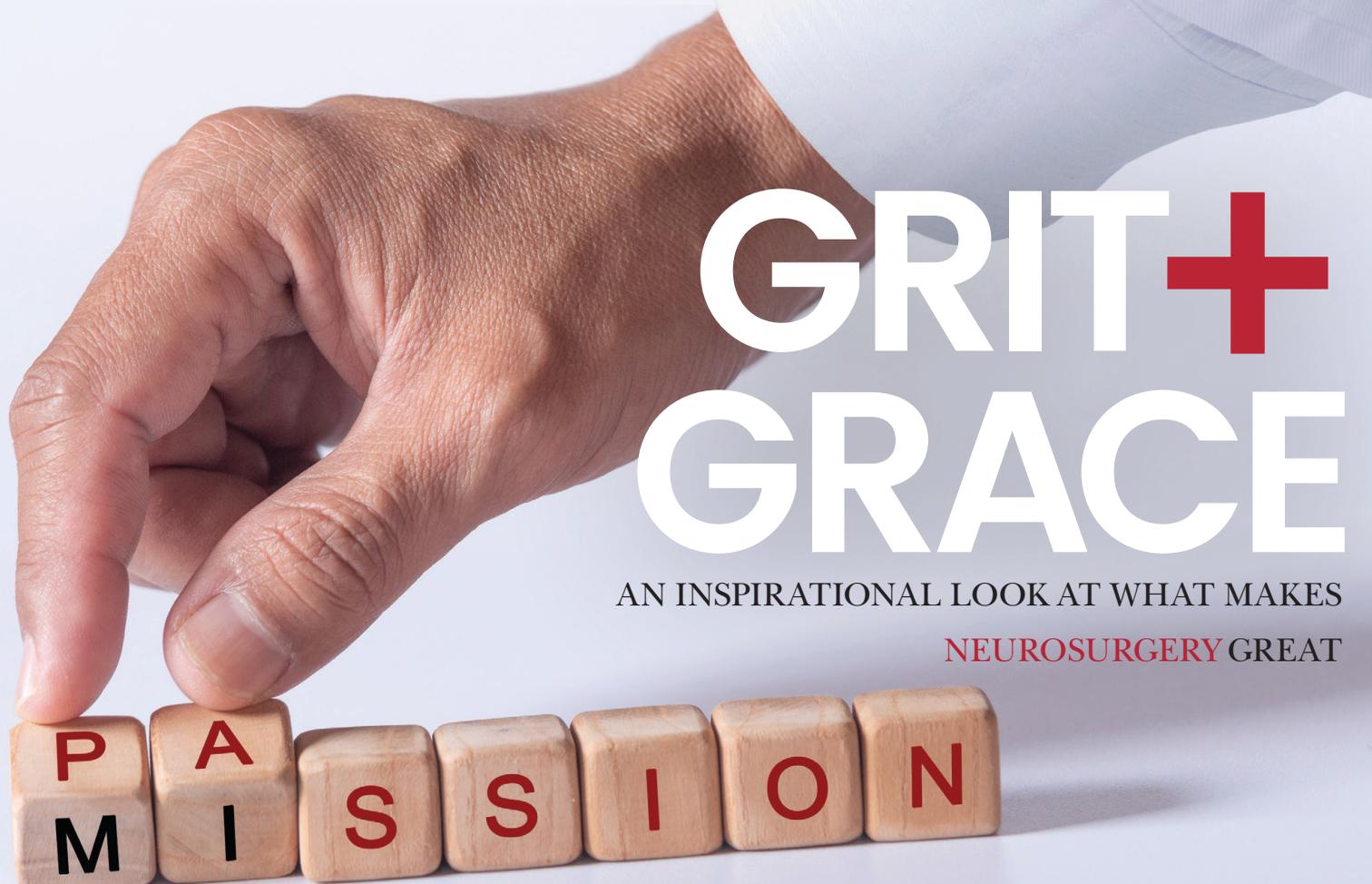


CongressQuarterly

SPRING 2022



GRIT + GRACE

AN INSPIRATIONAL LOOK AT WHAT MAKES
NEUROSURGERY GREAT



Congress of
Neurological
Surgeons

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**Congress of
Neurological
Surgeons**

EDITOR'S NOTE



Ellen L. Air
2021-22 Co-Editor



Clemens M. Schirmer
2021-22 Co-Editor

A Twitter meme recently raised the question “why do people still choose to go into neurosurgery?” The replies were swift, noting that neurosurgery is “awesome” and “a calling.” The pathway to and through neurosurgery has been different for many of us, but most would also agree that it is a long and sometimes arduous journey. We are no strangers to challenges, long hours, or disappointment. A

certain amount of grit and stamina is required to carry on pursuing the goal of providing excellent patient care or pursuing research and education. Remarkably, some colleagues seemingly carry out all these things with flair and grace that sets an example. We have also learned through these last few years of exceptional challenges, that we need to give ourselves grace.

We are dedicating this issue to the idea that neurosurgery is a profession requiring a balancing act between grit and grace. The Congress of Neurological Surgeons has identified wellness as a focal point of our mission to serve our members. As Mackel et al. share in their update from the Wellness and Resilience Committee, wellness is fundamental to grit. Committee programming is geared to help our members sustain “meaningful work” throughout their practice.

Two sages of our field share how they maintained their passion for neurosurgery and thrived. Anthony Wang’s interview of Ulrich Batzdorf takes us through the arc of a successful career. Leland Albright’s reflections on finding joy through patient care and teaching reminds us to savor moments, big and small, that renew our passion.

Challenges often spur opportunity and inspiration, turning grit into grace. Gary Oxford’s unique experience as a neurosurgical patient has brought him to a career in neurosurgery and “fuels his diligence” as noted by Aurora Cruz. Sometimes it is not important how we fall. It is expected, but how do we recover and get back up. Venita Simpson turned a seemingly never-ending series of “no’s” into a successful career focused on helping elevate others. Anthony Avellino overcame personal struggles to find purpose through “Listening, Learning, and Healing.” Mark Iantosca updates us on his initiative to understand how neurosurgeons perceive and cope with adverse events. In addition, The CNS Publications Fellow Matthew McPheeters and our outgoing Editor-In-Chief of Neurosurgery Nelson Oyesiku reflect on how we should remember never to let a crisis go to waste and how COVID-19 help to accelerate a focus on wellness in the Journal.

We thank the authors for sharing their inspiring stories and anticipate many elements of their experiences will resonate with you.

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PRESIDENT'S MESSAGE



Nicholas C. Bambakidis, MD
President, Congress of
Neurological Surgeons

Dear Colleagues,

There is no question that neurosurgery is as demanding a career as it is rewarding. In the best of times, our specialty requires us to dedicate immense time and energy to training, technical skills development, patient care, research and more. When you add in years of regulatory pressure, an increasing administrative burden, support staff shortages, and a two-year pandemic that has led to constantly shifting priorities, it is remarkable that so many of us continue to show up day after day. And yet we do. It is a true testament to the dedication and persistence of those who have chosen this field.

It is a great honor for me and my colleagues on the CNS Executive Committee to work on behalf of this unique and passionate specialty. The CNS remains committed to helping you navigate the challenges impacting your practice today and into the future. One way we have committed to doing this is by creating more meaningful opportunities to connect with your colleagues both within and beyond your subspecialty. Through live courses, virtual events, and the CNS Annual Meeting, we aim to create an environment where you can share common experiences with colleagues around the world, learning and gaining strength from one another.

Over the past few years, we also formed the CNS Wellness & Resilience Committee, which is dedicated to understanding the factors that impact neurosurgeon wellbeing and disseminating information and resources to help members build resilience. The Wellness Committee brought special courses and a *Voices of Neurosurgery* session to the CNS Annual Meeting, where members shared their personal stories of resilience for a live audience in the Xperience Lounge. The committee has also been conducting

research and publishing papers on neurosurgeon wellness, as well as developing virtual events and online resources for members. On page 4, Charles Mackel offers an update on the CNS Wellness & Resilience Committee's efforts.



CNS Members share their stories of resilience during the Voices of Neurosurgery session during the CNS Annual Meeting in Austin, TX.



CNS Members re-connect with colleagues in Austin at the CNS Xperience Lounge and the Sunset Lounge,

> THE CNS REMAINS COMMITTED TO HELPING YOU NAVIGATE THE CHALLENGES IMPACTING YOUR PRACTICE TODAY AND INTO THE FUTURE. ONE WAY WE HAVE COMMITTED TO DOING THIS IS BY CREATING MORE MEANINGFUL OPPORTUNITIES TO CONNECT WITH YOUR COLLEAGUES BOTH WITHIN AND BEYOND YOUR SUBSPECIALTY. <

Most of all, we value your ideas and suggestions for ways the CNS can help you navigate your practice challenges and maintain your focus on patient care. We are currently in the process of developing our next strategic plan to drive the CNS' priorities and activities in the years ahead. You may have received an invitation to participate in an interview or online survey, as part of this planning process. If so, I hope you will take a few minutes to contribute your thoughts to the process. Of course, we always welcome your feedback any time by contacting the CNS Headquarters office or reaching out to one of the officers.

I am continually inspired by the way our specialty rises to whatever challenges come our way. I hope you will enjoy the many stories of resilience in this issue of *Congress Quarterly*, as I have, and I look forward to connecting with many of you this year at an upcoming course, virtual event or the CNS Annual Meeting. ✉

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Charles E. Mackel, MD, JD



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Towards a Grittier Neurosurgeon through Resilience and Purpose: An Update from the CNS Wellness and Resilience Committee

Overview of Grit

In 2007, Duckworth et al. described a personal quality shared among high achieving professionals. In their estimation, success required not simply talent but the “sustained and focused application of talent over time.”¹ They called this quality “grit.”¹ Grit consists of two sub-traits: (1) consistency of interest in a particular goal and (2) perseverance of effort in completing that goal.² Therefore, the gritty individual was one who held “perseverance and passion for long-term goals,”¹ who “maintain[ed] effort and interest over years despite failure, adversity, and plateaus in progress.”¹

For the neurosurgeon seeking to become grittier, the question is whether grit is inherent and immutable or whether it can be taught. Although simply reaching the stage of neurosurgeon attending or trainee requires an intrinsically high level of grit, we suggest that a neurosurgeon’s grit can be further fortified and, in fact, efforts are already underway to this end. We will consider each aspect of grit and discuss methods for their reinforcement, including the contributions of the CNS Wellness & Resilience Committee members in their pursuit.

Perseverance of Effort¹

In the original grit scale of Duckworth et al., “perseverance of effort” is assessed by positive responses to such statements as: “I finish whatever I begin,” “setbacks don’t discourage me,” “I am diligent,” “I am a hard worker,” “I have achieved a goal that took years of work,” and “I have overcome setbacks to conquer an important challenge.”¹ These statements mirror another reported trait of physicians: resilience. Assessed by such metrics as the Connor-Davidson Resilience Scale,³ resilience is defined as “one’s ability to bounce back when faced with adversities”⁴ or “ability to maintain good functioning after stress exposure.”⁵ This symmetry is expected because, according to Duckworth et al., grit incorporates resilience.⁴ Recognizing that resilience subserves grit is key because improving resilience will improve grit, and “resiliency training” is more formally developed than “grit training.” Two points follow.

First, to achieve better resilience among neurosurgeons (and thereby more grit), a culture shift must continue in the understanding of wellness and resilience. Wellness and resilience are not vehicles for “millennial culture,” “instant gratification,” or leisure.⁶ Rather, the goal of wellness/resilience is to produce lasting work. The ability to produce lasting work comes from the recognition that a career in neurosurgery is a decades-long marathon, even if each day’s leg is a run up Heartbreak Hill.⁷ It is no coincidence that Duckworth et al. uses the analogy of a marathoner to describe the “perseverance of effort” integral to grit,¹ and that the “marathoner” motif populates articles about neurosurgeon resilience.^{8,9}

Spiotta et al. describe the parallels at length between neurosurgeons and athletes.¹⁰ Salient here is the observation that athletic excellence requires intense practice of skill and “goal-oriented” recovery. That is, the interlude between practice (“recovery”) has purpose: getting ready to engage again in better, more intense, more efficient practice. The balance of practice/recovery differs dramatically between trainees and attendings, but wellness and resilience pertain to both in saying that “recovery” should optimize performance. As with pieces like this, one job of the CNS Wellness & Resilience Committee is to facilitate the understanding that pursuing wellness/resilience is not an evasion of responsibility but, in fact, a commitment to it.

Second, if building resilience builds grit, how do you build resilience? Several resources by CNS Wellness & Resilience Committee members explore solutions to this topic within neurosurgery. In long form, Simonds and Sotile describe a resiliency curriculum delivered via monthly, two-hour resilience sessions benefiting trainee and faculty alike.¹¹ Spiotta et al. report on the resiliency benefits of a wellness program centered around physical activity.¹² Reviewing the available literature, Mackel et al. propose that solidarity and collegiality are key protective factors in reducing neurosurgical burnout and optimizing resident-faculty wellness programs.¹³ These conclusions underpin the approach of the CNS Wellness & Resilience Committee.

Currently, the CNS Wellness & Resilience Committee is leveraging its national role to disseminate good habits of physical and mental wellbeing while also strengthening personal relationships among its members. At annual meetings, this takes the guise of fitness events, socials, performance workshops, and seminars on specific topics. These open forums allow attendees to share their own experiences, whose spontaneous insights often outshine anything planned. In recognition that one of the greatest boons to resilience comes from connecting neurosurgeons with each other through open forums, the CNS Wellness & Resilience Committee will be facilitating these assemblies year-round. The COVID pandemic has expedited the move online; therefore, the CNS Wellness & Resilience Committee will be using Zoom and social media to host town halls, “happy hours,” and mindfulness sessions as well as creating a resource of “TED”-style wellness/resilience talks for neurosurgeons.

Consistency of Interest¹

“Consistency of interest” constitutes the second component of “grit.” Duckworth et al. appraise “consistency of interest” by inverting scores to such questions as “I often set a goal but later choose to pursue a different one” and “New ideas and projects sometimes distract me from previous ones.”² Considering that an equal number of questions in the Grit Scale are dedicated to “consistency of interest” as to “perseverance of effort,” the ability to avoid being distracted from an identifiable goal (focus/purpose) is as integral to grit as shaking off adversity in pursuit of that goal (resilience).

If the gritty neurosurgeon works doggedly towards a primary goal, it begs the question of what, exactly, that goal is. It is no surprise that most manuscripts about “physician grit” describe residents or medical students,¹⁴⁻¹⁶ including the only two empirical studies of “grit” in neurosurgery.^{17,18} For medical students or residents, the interest that persists across the years is obvious: completing medical school or residency. But what of attending neurosurgeons?

We propose that the pursuit of “meaningful work” can be the overarching goal for neurosurgeons, and it is the charge of the CNS Wellness & Resilience Committee to recognize this interest and keep it in focus. As Spiotta et al. write, we should “celebrate and highlight the positive aspects of our profession, including the lives saved and touched by us.”¹⁹ Simonds and Sotile suggest this begins with taking a few minutes at the start of each day to remember what we are doing and why.¹¹ This observance may further take the form of shared experiences. For example, *Voices of Neurosurgery* was a popular CNS event where attendings and trainees imparted their meaningful experiences in neurosurgery, and it may be transitioned to podcast form. We should not let our overarching goal of helping patients remain implied but will state it more often out loud.

However, it is not enough to observe that “meaningful work” is the goal of neurosurgery. It is also the role of neurosurgical societies to cull work distractions that take away from patient care and obscure the goal of “meaningful work.” This focus is critical as it counteracts the idea that “gritty neurosurgeons” should just stoically power through all the impediments to their work. Maintaining “consistency of interest” is both a passion for meaningful work and protecting that work from external interference. Such interferences include electronic medical records, insurers, hospital administrators, charting, emails, RVUs, understaffing, medicolegal concerns, loss of physician autonomy, and more. At this point, the CNS Wellness & Resilience Committee is interested in demonstrating how these burdens infringe upon meaningful work (patient care) and what the lasting impact may be. Recently, Committee members linked pressuring neurosurgeons to perform futile surgery for “nonmedical” reasons with an increased risk of moral distress, burnout, and attrition.²⁰ In the next several months, the Committee will seek to show that not only are administrative tasks increasing but also that these tasks are undermining the neurosurgical community’s belief in their work and capacity to resist burnout and turnover.

Conclusion

Grit is the exercise of consistent effort towards a consistent goal. The CNS Wellness & Resilience Committee aims to fortify the “inherent grit” of neurosurgeons by reinforcing each component in turn. First, wellness and resilience must be understood as part of the neurosurgeon’s armamentarium to producing good, lasting work. These concepts do not conflict with a flourishing career but rather further it by sustaining it. Although many individual neurosurgeons will find wellness/resilience in unique outlets, we believe that strengthening the solidarity of the neurosurgery community as a whole will prove a common good. Second, the primacy of “meaningful work” through actual patient care must continue to be made explicit, particularly through personal stories. Meanwhile, a research-driven foundation will be laid that demonstrates the real-world consequences of impediments to “meaningful work.” By stressing resilience and purpose, we believe that the CNS Wellness & Resilience Committee can assist neurosurgeons in maximizing their grit in the pursuit of patient care.

To learn more about the work of the CNS Wellness & Resilience Committee, visit cns.org/wellness-and-resilience. ■

For a complete list of references, view the online issue at cns.org/publications/congress-quarterly



A. Leland Albright, MD

Reflections on Joy and Neurosurgery

My perspectives about joy and neurosurgery come from one who is nearing the end of an academic career in neurosurgery and in particular, pediatric neurosurgery. Joy is not the same thing as happiness. Happiness is man-made, like happy relationships with friends and within our jobs, but joy comes from deeper within, sometimes with tears in the eyes. The author Frederick Buechner has written that “Anyone who is truly joyous has a right to say that he (or she) is doing God’s will on this earth.”¹

A recurring source of joy has been from teaching residents and fellows.

Sometimes it came from lecturing—not during a lecture but afterward, when it was somehow clear that the audience did not just listen to the lecture but the lecture got into them, so that the new information they learned would truly help them take care of their patients. I gave a series of lectures in Zahedan, Iran, in 2003 on the main topics in pediatric neurosurgery. My host for that event wrote an email out of the blue a few weeks ago, 19 years after the visit, and said, “Your trip to Iran and Zahedan is the highlight of my scientific cooperation/collaboration achievement.” That email brought unexpected joy.

Sometimes it came from maxims—maxims said to residents and fellows time after time during day-to-day patient care... because they are critically important. One of mine has been, “*Treat the patient, the child, as if it were your own child.*” My wife Susan, a pediatric nurse practitioner, and I taught and did pediatric neurosurgery in Kijabe, Kenya, from August 2014 - January 2015, and I repeated that maxim to every group of residents or fellows who rotated with us. In February, 2019, we went to Eldoret, Kenya, for two weeks to teach and operate at the Moi Teaching and Referral Hospital. Four neurosurgical faculty members there had rotated with us in Kijabe when they were residents in the University of Nairobi program. At the end of our time in Eldoret, a banquet was given in honor of our visit and speeches were given. One of the former residents, whom we were unsure of as to how much of our teaching he was getting, gave a speech and at the end of it, said, “We will always remember how you taught us to take care of every patient as if it were our own child or family member”—we were delighted to hear him say that—



Dr. Albright with colleagues and residents in Kenya in 2019

> WE WILL ALWAYS
REMEMBER HOW YOU
TAUGHT US TO TAKE CARE
OF EVERY PATIENT AS IF IT
WERE OUR OWN CHILD OR
FAMILY MEMBER<

– A former Resident, reflecting on Dr. Albright’s teachings.

but then he continued with words that I don't remember saying but that are consistent with what I taught, "...and to take care of every patient as if it were the only patient you have." Those words brought joy and a tear.

Sometimes it came from teaching surgical techniques. Over the years, I received emails from former residents who described doing a difficult operation well, removing an intramedullary spinal cord tumor or a thalamic or posterior fossa tumor, and they said they remembered how I did the operations with them when they were residents and that as they did their own cases, words that I said during those cases came to mind. They brought joy.

Sometimes it came from teaching a way to live. A former UPMC resident did a rotation with us in Kijabe. A few years later she wrote an email that included these lines: "I wanted to tell you that I have a picture of you mopping a floor in the adult ward (women's side) in Kijabe. Maybe you do not remember doing this. Maybe you did this many times and I only happened to be on the ward when I "caught" you doing this. You are hunched over, looking very intently and appearing to work hard, your face in profile only. To be honest, you did not look particularly dignified or distinguished, which is how I think of you as a neurosurgeon, but quite the opposite: you actually appeared meek. I have never told you how much little things like that make all the difference." That email brought tears of joy.

Sometimes it came from contributing to the advancement of neurosurgery by developing a new treatment. Warwick Peacock taught me how to do selective dorsal rhizotomies and I started a multi-disciplinary spasticity clinic at the Children's Hospital of Pittsburgh. In it, we saw children with spasticity of their upper and lower extremities. I studied the early use of intrathecal baclofen in adults with multiple sclerosis and thought it might work in children with spastic quadriplegia. Our federally-approved study confirmed that effectiveness.² The conclusions were gratifying but not to the level of joy. That came from the first patient with severe secondary dystonia, a 35-year-old woman with that condition after an anesthetic disaster when she was 5 years old. She had not responded to high doses of oral baclofen and had no other treatment options at the time. I implanted an intrathecal baclofen pump, began its infusion, and two days later her dystonia was virtually gone. That brought great

joy—as has the response to ITB of many children and young adults with secondary dystonia since then, in which ease of care and quality of life improve in 85% of patients and function improves in 33%.³

Sometimes joy came from the ways treatments improved the quality of life of not only children but of their families as well. Children with spastic quadriplegia often had pain in their trunk and extremities and were unable to roll over in bed. At night, that necessitated their parents getting up every 2-3 hours to turn their child. Treating those children with ITB diminished their pain and decreased their caregiver burden in 90% of the patients.⁴

A recurring source of joy is the receipt of emails, cards and letters from children I treated 20-40 years ago. I remember many of them but not all, and yet reading their words of gratitude about how I treated them or cared for them makes me deeply grateful for this career.

When Scott Wait invited me to contribute to this compendium, he said, "More than anyone I have ever been around, you seem to get pure joy from helping others through neurosurgery." I hadn't really thought about it in those terms but as I reflect back on the career, the joy has come from what he said, "helping others through neurosurgery." My deep desire throughout this career has been to use the abilities and opportunities I have been given to express the love of God for the patients and families I have seen. There have been hard aspects of the career—the time commitment necessary, cases that were terribly difficult technically or emotionally or both, and three lawsuits—but my overwhelming emotion at the end of the career is not joy, though there has been much joy in it, but gratitude from the depths of my being for being given the blessing of this career, this medical ministry. ■

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Anthony C. Wang, MD

A Most Hopeful Diagnostician: An Interview with Ulrich Batzdorf



I've looked forward to interviewing Ulrich "Rick" Batzdorf, age 93, for quite some time. Born in Breslau, Germany, his family left three months before the outbreak of World War II, and eventually arrived in New York in 1940. Walking into his office is like zooming out on a timeline. His bookshelves are laden with seminal neurosurgery texts like Rhoton's, but also unfamiliar neurology prints, like Wolff's Headache, which I'm

pretty sure is a first edition. His wrap-around desk is piled high with journals, yellow legal pads, and pink manila folders. Behind a box of other folders, I spy a dusty khaki binder labeled, "Operations, 1962-1963, Vol. II." Conspicuously absent are his awards—the walls are bare, and his countless awards are not displayed anywhere. Instead, a colorful birdhouse is perched on two even stacks of journals, with a number of other cards and thank-you's attached, from grateful patients and colleagues.

This is the workspace of a humble man, someone who clearly delights in providing the very best service and care for his patients. It's a clear reflection of the person whose domain I've entered. Dr. Batzdorf sees complex Chiari and syringomyelia patients in clinic regularly, and assists on complex surgical cases from time to time. He has served as the ombudsperson for our residency for many years, and his reputation for combining scientific candor with old-school reserve is well-known.

In my seat, Dr. Batzdorf has placed a recent NEJM, and he tells me to flip to the case records section—he thinks that this case will pique my interest, and he's right. He offers me some self-effacing encouragement about how my recent lecture on moyamoya was the only reason he was able to identify the diagnosis... but I don't believe him for a second. In my time on faculty at UCLA, he's been

kind enough to pretend to ask for my advice from time to time, which of course makes it easier for me to come to him for help, which I've done often.

What personal experiences made you choose to pursue neurosurgery?

Being enchanted with neurology and neuroanatomy, there wasn't very much that you could do in neurology in those days (treatment wise), and I like to do things with my hands. I can still see Dr. Tarlov, who was a short, stunted man, standing up there [teaching]. Somebody had said, "This could be a meningioma." And he said, "Yes, that would be the most hopeful diagnosis." And that term, "the most hopeful diagnosis," has stayed with me ever since. So that was sort of, I would say, sort of a moment of insight: "Hey, wait a minute, here's neuroanatomy, and here's localization based on my knowledge of neuroanatomy, and there's something I can do about it." And so that's how it all came about.

What are the things that you did that really caught your interest and maybe stirred up some of the innovative spirit that you had in medicine?

I'll tell you anecdotally I will never, ever forget. I had an uncle who was a mathematician and physicist, and he lived in Switzerland. We took a walk together one time, just as I was starting. I think it must have been when I was doing the tissue culture lab, and he wanted to know a little bit about how are you going to do this? And I said, "Well, I'm going to go to the library and read a little bit what's been done..."

And he said, "Stop. No. Wrong. You do your work first, and then look at what has been done by other people," and that has sort of remained as a guideline.

Do your own thinking first. I think one learns more from failures, from things that haven't gone as predicted, than one does from success. I've always made a point of trying to see how I could have done something better. And that could be in terms of doing it better, not just technically in the operating room, but doing it better in

ordering studies that I should have ordered to rule out another diagnosis or comorbidity or something like that.

I realize I'm a bit of a dinosaur in terms of approach to medicine. I still place a great deal of value on getting an accurate history, and I think to put it slightly differently, I think the challenge today is to prove that what you see on the MRI has anything to do with what the patient complains of. But there's much too much focus on the imaging studies.

What specific mindset or practices did you incorporate to make yourself better as a surgeon and as a doctor?

I would very often question myself after having reached a decision. I might say, is this really the only answer? Is this really the only possibility? Have I overlooked something? And I have benefited from my association with colleagues. As you know, I've been active in expanding my knowledge into areas that I might not necessarily have stumbled onto myself, such as cranio-cervical instability, tethered chord, secondary Chiari's, and pseudotumor. With that sort of broader mindset, I oftentimes go back and question whether my initial impression is correct and ask myself, "Have I overlooked anything? Is there any possibility that this patient, who I think has a typical Chiari, might have secondary Chiari?"

I learned from the unusual. I think I'm not the first to say I learned more from things that either I or others have not done right, than simply from celebrating my successes.

What advice do you most typically give trainees?

Be compulsive and don't take any shortcuts in obtaining the history and doing a proper examination on the patient, because you may come up with surprises. For a new patient, I leave an hour and a half, and it's a luxury that I have. If I were working in some group where

they say you have to see a patient every 15 minutes, I don't think I would be very happy.

Also, don't get stuck on thinking—or operating—in one way, just because that's how you learned it. Be open to new ideas and to learning new techniques, and be open to modifying as the situation demands.

What sort of advice would you give a neurosurgeon nearing retirement? How do you keep interested in the field?

I find it still challenging to see patients to be able to analyze their problems or shed light on their problems. And even though I'm not in charge of their surgery anymore, I think sometimes I can, based on my experience and my contacts with others who are more peripheral to my interests, whether it be in connective tissue disorders or in mast cell activation syndrome or whatever, I think I can add something still, and that's what keeps me going. And I still like to learn new things. I enjoy reading *The New England Journal* and the *Journal of Neurosurgery*. I have other interests outside of medicine, but this keeps me stimulated.

You will always be able to impart something, some little additional thing. And it may be just a tiny step. It may be just a tiny comment, but it may have a lifetime impact.

How did you know it was time to stop operating?

Rightly or wrongly, I felt that in today's world, my patients would know how old I am. The surgery I performed had inherent risks of complications and of failure to improve (i.e. falling short of the patient's expectations) and I didn't want to get into a situation where a patient felt that if they had gone to someone younger, this outcome would have been better. I didn't want to do this to myself, and not to the institution. ❏

To read the entire interview with Dr. Batzdorf,
please visit the online issue at cns.org/publications/congress-quarterly



Brent Garrison (Gary)
Oxford, MD

An Unexpected Path to a Career in Neurosurgery

“Fred has to go.”

I found out about my brain tumor while enjoying the summer off after an exciting first year at college. I was studying chemistry and had never considered pursuing a career in neurosurgery or even one in medicine. But everything changed as I sat across from my neurosurgeon while he told me the results of the MRI. His carefully chosen words were intended to convey a simple but terrifying message. I heard him clearly but could barely process what he said. An overwhelming sense of fear and anxiety prevented me from saying anything at all. My mother was the first to speak, asking what it all meant, what will we do, how can we fix this? The office visit stretched out for over an hour, with every question answered in detail. We decided to remove the tumor with surgery. By the end of the appointment, I was still in disbelief but realized that I implicitly trusted the surgeon sitting across from me. He had been calm, understanding, and empathetic. A picture of his children hung on the wall of his office next to diplomas, awards, and bookshelves filled with neurosurgical texts and journals. There was something about his words and behavior that I found very reassuring and gave me a sense of hope. I spent the next few weeks in a daze, grappling with the concept of my own mortality, uncertain about my future, scared of the surgery I would undergo, yet knowing that I would be in the best hands.

My family and friends were tremendously supportive. We joked that the tumor was named “Fred” and he had to go. I did my best to try to live a normal life in the days up to surgery. A few days before surgery, my aunt gave me a metal paperweight with a question engraved “What would you attempt to do if you knew you would not fail?” a motivational quote that has stuck with me and still sits on my desk today. The morning of my surgery, I sat in the waiting room with all my parents, siblings, grandparents, aunts, uncles, and cousins. Over twenty people to show their love and support. I was taken from the preop area back to the operating room and was able to count only a few numbers before drifting off to sleep. Everything went well and I woke up with no deficits. The final pathology report

for my tumor was a pilocytic astrocytoma and it was successfully and completely removed encouraging an excellent prognosis. Despite my parents’ pleas that I stay home and recover, I went back to college ten days later with the full intention of resuming a normal life. Committing myself to push my own limitations, I ran and finished a marathon just a few months after surgery.

After my harrowing experience, I had resolved myself to pursue a career in medicine. The compassion my doctors had shown me, and the caring nature of the nurses and medical staff made me realize that I wanted to dedicate myself to a profession that could help others in the same way. The pull of neurosurgery grew over the years as I learned more about medicine and the neurosciences. The vast complexity of the nervous system and the intricate and delicate skill needed to perform brain surgery was something I found very appealing. Being a neurosurgeon requires a natural curiosity and a dedication to learning. Halfway through my medical school training I realized that no other specialty would challenge me in the same way.

Almost 10 years after my diagnosis I started my neurosurgery intern year. Now in the middle of residency, I know that there is no other career that could provide the same satisfaction. Every day presents new challenges, the work is vigorous, the expectations are high. Occasionally, a patient will notice the healed incision from my craniotomy and ask what had happened. In my role as their physician, I try to keep my response brief and redirect the conversation to the patient’s care rather than focus on my own story. Although, in some situations it has provided hope and inspiration to others and helped me to develop a stronger rapport.

“The patient is the one with the disease,” one of the often-quoted laws from Dr. Samuel Shem’s *The House of God*. Very few neurosurgeons will experience neurosurgical care from the perspective of the patient. It is very easy with the numerous stresses of work to forget to think about what the patient is feeling. To state the obvious, the post-operative pain from a craniotomy is miserable, laying in an MRI for hours can be terrifying, and waiting NPO for surgery will make people hungry and frustrated. To my advantage, I think having had a brain tumor has made me a better advocate for my patients. My own serendipitous experience has given me a perspective unique to many doctors and is part of what motivates me to pursue this challenging and rewarding profession.



Aurora Seaton Cruz,
MD, MBA

Epilogue

by Dr. Aurora Seaton Cruz

Neurosurgery patients are often faced with a shocking and terrifying diagnosis that leads to contemplation of an unimaginable future. Many of us who choose this elite but harrowing field of Neurosurgery boldly charge into the challenges of training and practice because this is not our first time being pushed to our physical and emotional limits. The fear of holding the pager alone on our first night of junior call pales in comparison to losing our loved ones, rising to impossible challenges, or facing the potential loss of our own normal, healthy future. This fortitude sometimes causes us to put up a façade of impassivity that also blocks out the joy and purpose our vocation can bring to us. It takes great strength and courage to allow that wall to fall and share with a patient, “I have been there, too. I get it.”

I have the privilege of being Gary’s chief resident and colleague. Watching Gary grow from a medical student to a highly competent and reliable junior resident has been one of my greatest joys of residency. I have seen how Gary’s compassion and empathy for his patients fuels his diligence and excellence. While most of us have not personally been under the blade of a neurosurgeon, we can all take a moment to ask ourselves, “How would I feel if this was my father, brother, son, or me?” and help shepherd our patient’s grief, hope, and perseverance through their tribulation. The grit and optimism that allows our patients to thrive is the same substance that fuels the neurosurgeon to get up every day with hope that our patients will lead meaningful lives and are better off for our small part in that journey. ❏



Despite years of extensive research, scientists still can’t understand why hospital food tastes terrible everywhere.



Patient: “Doctor, will I be able to play the guitar after surgery?”

Doctor: “Yes, of course”

Patient: “Great, I never could before.”

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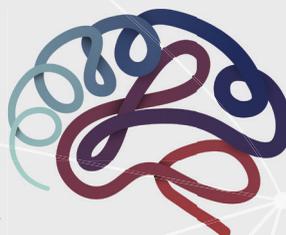
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Mark R. Iantosca MD,
MBA

Getting Back on the Horse: How Surgeons Perceive and Cope with Adverse Events

Transformative Impact of Outcomes in Neurosurgery

Neurosurgeons have the privilege of caring for patients experiencing some of the most impactful moments of their lives. We are entrusted to navigate complex treatment options and maintain impeccable technical skills to deliver the best outcomes possible. Over a decade of our lives is dedicated to development of the skills and knowledge required to earn this privilege. Indeed, given the pace of advancements in our field, the responsibility to expand and refine our craft is ongoing throughout our careers. We are often rewarded with the ability to relieve pain, repair injury, restore function, or prolong the lives, earning the lasting gratitude of our patients and their families. These optimal outcomes are unfortunately never guaranteed.

Serious adverse events (SAEs) in neurosurgery are often immediate and devastating. The impact of paralysis, loss of a primary sensory or language function, and alterations in personality, intellect or memory impairment all strike at the core of a patient's identity and quality of life. Neurosurgical adverse outcomes are often highly visible and life altering. As in other surgical disciplines, the neurosurgeon is perceived to be more directly responsible for SAEs for a variety of reasons. Multidisciplinary medical care teams can divide the decision process and accountability for outcomes among several experts over time. Operative interventions are singular events, where decisions must often be made "on the fly" without time for research or consultation with other expert resources. The surgeon is perceived to bear sole responsibility for the outcome of these events, which are literally and figuratively in the surgeon's hands.¹

Despite this, there has been little to no study specifically on the emotional and psychological impact of SAEs on neurosurgeons. Traditional surgical quality improvement programs emphasize technical details of an error with little regard for the surgeon's emotional wellbeing. Finally, the traditional atmosphere of surgery promotes internalizing emotions and 'moving on' which may inhibit surgeons' expressing their emotional responses to SAEs.¹ Quality efforts have many tools to address process issues, but a "veil of silence" has historically hindered the development of tools for personal healing and reflection on SAEs.² The healing potential of open communication with colleagues or an apology to a patient or their family is often precluded due to the culture of surgery and impact of potential legal risk.

Reaction to SAEs

Our self-assurance following an arduous, solitary pursuit of skills leads us to assume that we can just "get back on the horse that bucked us" after such an event. The reality is that during our formal training, we probably haven't acquired the tools or skills needed to fully assess and manage our psychological response to SAEs. Despite the fiercely independent spirit and stoic personality traits pervasive among neurosurgeons, full recovery from SAEs may not be something we can achieve on our own. The impact of such events on healthcare providers can be so severe that the term Second Victim Syndrome (SVS) has been widely adopted.^{3,4} While controversial because of the implications of passivity or insensitivity toward the patient, SVS has been studied extensively over the last two decades. Multiple researchers have described the impact of SVS, experienced by half of all healthcare workers during their career.^{13,4,5} Over two thirds of those experiencing a SAE report long lasting emotional reactions of guilt, anxiety, shame, anger, crisis of confidence, depression, and even suicidal ideation.⁶ The incidence and impact of SAEs among neurosurgeons is potentially significantly higher.

The recovery process of SVS has been described by several authors to follow a regular process not unlike PTSD. The stages of this process, which may require weeks to several years, progress from initial shock (the "kick"), through a period of struggling to regain control (the "fall"), an eventual emotional recovery, and finally resolution with potential long-term impacts.⁵ Scott et al. described this phenomenon as passing through six distinct phases, each with their own central questions which will be familiar to any provider who has experienced such an event:⁴

1. Chaos and accident response, "How/why did this happen?"
2. Intrusive reflections, "Could I have prevented it?"
3. Restoring personal integrity, "What will others think?, Will I ever be trusted?"
4. Enduring the inquisition, "Will I be fired/censured/sued?"
5. Obtaining emotional first aid, "Do I need help?, Who/where can I turn to for help?"
6. Moving on, "Can I continue this work?, How do I learn/improve from this experience?"

The surgeon's internal struggles with these questions have impacts well beyond their own personal emotional well-being.

Consequences of SAEs

The psychological and emotional impact of these events on surgeons have wide-ranging consequences. Increased anxiety in surgeons following SAEs can result in tachycardia, palpitations, diaphoresis, and headaches during surgery. Reduced physical dexterity and fluidity of movements, increased tremor, clumsiness, and poorer surgical technique have all been described both in simulations and practice in surgeons experiencing stress or exhibiting limited coping skills.⁷ Guilt, shame, loss of confidence, and a diminished sense of self-worth may lead to social isolation from peers and poorer interactions with patients. Finally, surgeons may exhibit clouded judgement and decreased clinical decision-making capacity.^{1,7,8,9} In short, the knowledge, technical skills and experience we have accumulated over a lifetime of training can be negatively impacted by our failure to recognize and address our psychological and emotional responses to SAEs.

Tools to cope

Two decades of research into healthcare worker's responses to SAEs and the SVS have improved our understanding of how to provide them the needed emotional and professional support.^{9,10} This is an imperative for quality and safety programs as the long-term impact of SAEs can trigger a vicious cycle of anxiety and burnout impacting medical decisions and resulting in additional adverse events. Multiple studies have documented the success of programs developed to enhance physician's psychological resilience and coping mechanisms in response to such events.^{10,11,12} Despite the existence of such programs at many institutions surveys among providers indicate over 60-70% being unaware of, or reluctant to seek such assistance.¹³ Reasons given for this reluctance include fear of reprimand, damage to reputation, and even loss of employment or licensure. Physicians, particularly surgeons, may fear being thought of as weak for seeking support.

Key components of these programs, including the ability to remove oneself from the workplace mentally and physically and the availability of support from colleagues, family and friends, are not always available. The intrusive nature of self-doubt and introspection on the event makes mental distance from the event difficult to achieve. Discussions with trusted colleagues and friends can be hampered by HIPPA concerns, shame, and potential medicolegal ramifications.

While no study to date specifically addresses the response to SAEs and SVS in neurosurgeons, recent reviews demonstrating a relatively high rate of burnout (~50%) indicates these groups are likely also impacted.^{14,15} The same psychosocial stressors, financial, professional, and legal concerns that plague clinicians after SAEs

are among the factors most highly correlated with burnout in neurosurgeons and neurosurgery residents. Hopefully the impact of wellness programs being implemented and studied to address burnout will be effective in mitigating SVS as well.

A Better Understanding

Many questions remain about neurosurgeons' response to and recovery from SAEs.

- "Do neurosurgeons experience psychological and emotional sequelae to SAEs more frequently than other specialties?"
- "How do neurosurgeons' responses to SAEs vary over the course of their training and career?"
- "How can we develop and encourage participation in programs designed to mitigate the impact of SAEs in neurosurgery?"

Our responses to these events pose the risk of diminishing the effectiveness of the technical and clinical skills we have toiled decades to acquire. Our efforts to understand these responses and bolster our resilience to overcome these events will benefit our patients, trainees, profession and enhance our own job satisfaction and personal lives beyond neurosurgery. ■

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Anthony M. Avellino,
MD, MBA

Finding Purpose through Listening, Learning, and Healing



Running the Crown King Scramble 50 kilometer race on March 30, 2019 (photo by Jubilee Paige).

The COVID-19 global pandemic has led many of us to experience fear, anxiety, and depression, due to the isolation, lack of structure, financial uncertainty, new work from home realities, childcare pressures, and working long hours under threat of infection. These stressors have all impacted our mental health and overall well-being. This global pandemic has also given one the ability to pause and think about what brings them joy and purpose.

Each year, almost 400 physicians die by suicide. Reading that sentence should be enough to give anyone who has dedicated their life to helping and saving others cause

for concern. In becoming a neurosurgeon, I sought to live my life bringing healing to those with neurological disease. After completing my training, I felt a tremendous sense of pride knowing that I was prepared to have a great impact on patients and families in their time of greatest need and hopelessness. I entered and ended each day with the knowledge that I had given my all. I ignored the fatigue and underestimated the accumulated trauma and stress that was taking a toll on my overall physical and mental health. Our work in neurosurgery involves the brain health of our patients, and part of maintaining their brain health is taking

care of them and ourselves while sustaining a work-life balance.

As a pediatric neurosurgeon, I have had the privilege to experience incredible triumphs and dreadful human suffering with the children and their families who entrusted me with their care. I have seen the power of the human spirit at its best and worst. What keeps me up at night is not the hundreds of children that had a great outcome, but the couple of bad outcomes every year where I made an honest error or the disease won. I started my practice 20 years ago, and I have over 40 children that I blame myself for not helping. All these experiences have affected my emotional and physical well-being. Being a physician is an incredible responsibility that brings an enormous amount of joy, happiness, and self-worth. It also has a burden of incredible guilt when explaining the daunting task of moving on when a child's outcome is grim or terminal. The compounding trauma of dealing with uncertainty and not being able to do anything takes its toll over time when one has not developed healthy self-coping mechanisms.

I understand what it feels like to be in the depths of depression and hopelessness. I have had a lifelong battle with stuttering, obsessive-compulsive tendencies, depression, and suicide. I continually fight these battles, and have learned to heal and recover through family, friends, and ultra-running. Expressing and acknowledging our insecurities is vital, but it is how we deal with them and find inner peace that is key. Showing compassion and kindness to ourselves is vital.

Since attempting to take my life on September 12, 2009, I have developed wellness tactics to help me journey through life to achieve optimum performance and to have a better work-life balance to lead a more healthy, peaceful, and purposeful life. It is important to have mental health, physical health, and relationship health so that one has a plan, enhanced energy, and stress tolerance. Having a plan is most essential for you to develop confidence to achieve your goals.

I wish I had known 35 years ago what I have come to learn today. Because, perhaps then, I would have been able to live a more peaceful, happy life. Through my collective experiences, I have learned that the road to a healthier, more purposeful life requires that you "stop and listen" to your life's journey. You must learn from your failures, and then you must take the steps you need to take in order to heal. No one should ever hit rock bottom as I did, and take their life.

Since my suicide attempt, I have found inner peace through endurance ultra-running races, which are running events longer than a marathon: 50 kilometer, 50 mile, 100 kilometer, and 100 mile races. I find that ultra-races are just like navigating the challenges of life. You need to prepare, start, work as a team, stay focused, and finish. Training and competing in ultra-running races continue to help me learn self-coping skills to overcome mental and physical challenges. When running through the mountains on rugged terrain during an ultra-race, I find that mental toughness is more important than physical endurance. Long distance ultra-running is what keeps me connected with helping others, both spiritually and emotionally. It has helped me cope with adversity and learn about myself in more ways than I dreamed possible. During some of the most difficult times of my life, I have found hope, healing, and purpose on the trails. I am at total peace on the trails. I still struggle with my demons, and my pain from depression is worse than a



physical injury. I have realized that it is how one handles setbacks and failure that is key to developing resiliency and well-being.

Life is like a marathon. You need to pace yourself. You need to make plans and goals that are realistic. You need to ask for feedback to continually improve. You must be passionate about what you do. You need to set and manage boundaries. For example, when you are on your way home, you can pick a time and area where you disconnect your work mind and focus on being present at home for your significant other, spouse, and children. Separating your work from your personal life is therapeutic and ensures you are living in the present. You need to think positively and eliminate negative

thoughts. You need to feel the now and stay in the moment. You need to celebrate your successes along the journey of life and not be too focused on climbing the ladder. Let the journey of life unfold.

My wife, Jennifer, and I developed "TACTICS" to achieve a healthier, peaceful and more purposeful life with optimum performance in mind, body, and spirit. I encourage you to practice your "TACTICS" daily to be your best ([see above "TACTICS" image](#)). 

*Portions of this article were adapted from: *Finding Purpose A Neurosurgeon's Journey of Hope and Healing*, by Anthony M. Avellino, MD, MBA



Venita Simpson, MD

Against All Odds: My Journey to a Neurosurgical Career

It was a hot summer day in July, 2011. I was wearing a brand new, crisp, long white coat. Filled with excitement and eagerness, I paced the halls of the hospital making my first rounds. I walked into one of the post-operative patient's rooms and introduced myself. "Hi I am Dr. Simpson, how are you feeling? May I examine you?" The patient replied, "Honey can you refill my water and take that trash out on your way out." That would be the first of many mistaken identities while being a resident.

Unfortunately, when most people see me at the hospital they see my age, gender and race first. Their first instinct is not that I am their neurosurgeon; it is that I am custodial staff, LPN, or a nurse. The post-op patient's reactions were not actually surprising but more disheartening and brought up feelings of disrespect. It was the first but certainly not the last. This is a story of a little girl who rose above adversity.

Growing up on the South Side of Chicago, I didn't meet any black female physicians nor surgeons. It wasn't until I was actually in medical school where I became exposed to them. For underrepresented minorities in medicine from urban cities, it is rare to see yourself represented in medicine and more rare in subspecialties like Neurosurgery. There exist many disparities in healthcare due to ethnic and socioeconomic conditions.

The first board certified black neurosurgeon was Dr. Clarence Sumner Greene Sr. in 1953. Almost thirty years later, Dr. Alexa Canady became the first black female neurosurgeon to train in the United States in 1981. These trailblazers paved the way for me to become the first black woman to train at my institution Baylor College of Medicine in 2019. Out of the 5,645 active neurosurgeons in the United States in 2018, only 3.8% were black, with black women representing less than 1% of the neurosurgical community. With the origins of the field of Neurosurgery dating back as early as the 18th Century, why is it that in the 21st Century we are still so far behind? For starters, it begins with a lack of access in our communities. "You can't be what you can't see" said Marian Wright Edelman, Founder and President of the Children's Defense Fund. Indeed growing up, we were rarely encouraged to go to college, let alone aspire to be physicians. Without other physicians to look up to, many youth self



"Dr. Simpson enjoys mentoring young female neurosurgeons as they navigate a career in neurosurgery."

selected out of a career in medicine before they even really gave it a chance. I, nonetheless, was determined to defy the odds.

Throughout high school I maintained a 4.0 GPA and was also a member of the National Honor Society, Student Council, and captain of my school's dance team. Still, my guidance counselor did not support my aspirations for medical school and denied me the premedical scholarship. My mother was a struggling single parent and at times required government assistance to help support my sisters and I. Yet, despite me being the most qualified student for these scholarships, both academically and financially, I was denied. Instead the guidance counselor suggested I consider nursing.

During my journey to enter medical school, "No" was a common theme. Struggling to juggle coursework with multiple jobs took a toll on my academics during my freshman year. Because of that, my GPA was not that of other pre-medical students, but my passion and drive

for medicine never faltered. I couldn't afford the expensive MCAT prep courses so I studied independently leaving me ill-prepared to achieve my desired score. This resulted in the next round of "Nos" to all 13 of my medical school applications. I did not have mentors in medicine to encourage me and guide me on how to navigate the system—just one part of the pipeline problem that makes it difficult to increase diversity when you come from a disenfranchised background.

Still, I kept going. It wasn't until I enrolled into the Georgetown Experimental Studies Program (GEMS), a post baccalaureate for underrepresented minorities in medicine, that I would hear my first yes. I was elated and felt unstoppable. I was determined to get to the finish line! The joy of hearing that first meaningful YES was fleeting though, as the "No's" would continue for years to come.

Attending a school like Georgetown University, you don't encounter many students that come from challenged backgrounds like mine. I didn't have many instructors that I could relate to. Even with the

GEMS program being behind the 7% minorities represented in our class, we still felt like we were in the shadows. Surgical subspecialties were known to be "boys club" so how was I, a black girl from Chicago, supposed to navigate her way into this elite club? This does not happen without mental fortitude and perseverance. But sometimes, it only takes one attending to see the light in you and take an interest in making sure you succeed.

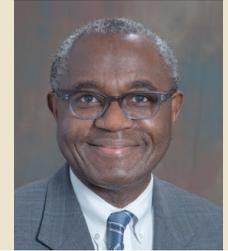
Mentors come in all shapes and sizes and for me, my first was Dr. Christopher Kalthorn who believed in me and actually invested time into ensuring my success. So although my first mentor did not look like me, the connection was still impactful. Despite having great board scores and grades, I didn't succeed my first time applying to neurosurgery. Another "No" but at this point, would it be my story if there was no struggle? My struggles made me stronger, more determined and more grateful for the opportunity to enter into this field. My struggles have provided me with a sense of humility and respect for the field of neurosurgery. Eventually, my perseverance paid off when I matched with Baylor College of Medicine. It was at Baylor that I was able to work with my first black, female neurosurgery attending Dr. Sherise Ferguson. The program also had two other female attendings, Dr. Lam and Dr. Heimberger which made the experience even more fruitful. Having a diverse faculty from which to learn and grow allowed me to feel seen, heard and understood.

My ability to overcome all of the odds against me, succeed in becoming a neurosurgeon and silence all of my "No's" has greater importance to me than my own personal ambition. I am never shy about discussing my failures, because they were wonderful lessons. I owe it to my community to give back and be a voice for the voiceless and I firmly believe that we have a responsibility to return to our communities not only to provide quality healthcare to those facing disparities with access to care but to also provide mentorship so that we can achieve nontraditional pipelines into our field. One of my favorite quotes from our director of GEMS is "When you get to the top, don't forget to send the elevator back down." This continues to be my life goal – to continue to send the elevator down and create more opportunities for minorities to achieve the unthinkable. ■

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Matthew J. McPheeters,
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Journal Feature: COVID-19: The Accelerant that Set Ablaze a Focus on Neurosurgeon Wellness

Two years ago our lives and nearly every industry abruptly and drastically changed. The NYU business professor and author, Scott Galloway, argues that the most enduring impact of COVID-19 will be its effect as an accelerant, “[take] any trend--social, business, or personal--and fast-forward 10 years. Even if your company isn’t living in the year 2030 yet, the pandemic has spurred changes in consumer behavior and markets.”¹ One particular area of acceleration in neurosurgery is the rise in importance of neurosurgeon wellness.

The Kindling and Spark

During two decades leading up to the COVID-19 pandemic a growing interest in the study of physician burnout and wellness coincided with the introduction of millennials to the field of neurosurgery. In 2003, the ACGME mandated the 80-hour duty limit on residents. Over the ensuing years, the effects of this mandate led to a contentious debate on their effect on resident wellness and patient care.² Additionally, these changes led to an increase in the study of physician burnout and wellness. Including a series of six articles published in *Neurosurgery* in 2017, called “Pursuing Wellness in Neurosurgery.”

While the changes imposed by the

ACGME duty hour restrictions were developed and implemented by the members of the Boomer and Gen X generations, the effects of the changes were laid primarily upon the Millennial generation (born 1981-1996). This is an important point, as the ACGME duty hour restrictions served as the kindling and Millennials were the spark that lit a fire of interest in promoting and improving wellness within neurosurgery. As one author in *Neurosurgery* described, “[Millennials] are confident and are often perceived as narcissistic and entitled individuals that are hard to manage. These traits in particular truly get under the skin of physicians from older generations, and with good reason.”³ While this may appear to be a scathing criticism of Millennials, the same author went on to state that “Millennials are well positioned to make great contributions in neurosurgery, not just in clinical care but perhaps most profoundly on the research and technological side, mostly due to their aptitude with technology and innate desire for efficiency.”³ As millennials entered neurosurgery they brought with them a greater emphasis on work-life balance, resulting in the promotion of wellness and reducing physician burnout.

Burnout is a clinical syndrome that includes emotional exhaustion, depersonalization, and reduced personal

accomplishment.⁴ Burnout is common among practicing neurosurgeons and neurosurgery residents. In 2018, my colleagues and I published the first study in *Neurosurgery* assessing the prevalence of burnout specifically in neurosurgery residents. We found the prevalence of burnout to be 36.5%, a strikingly high number, however significantly lower than residents and fellows in general (60%).⁵ Subsequently, a systematic review, published in *Neurosurgery*, found the prevalence of burnout among neurosurgery residents to be 11.2 – 67% and 27 – 56.7% in neurosurgery attendings.⁶ In an effort to combat burnout and promote physician wellness, Spiotta et. al, published the first study in *Neurosurgery* on incorporating a wellness initiative into a neurosurgery residency program.^{7,8} The authors implemented a wellness program known as Operation La Sierra that included physiologic data monitoring as well as a series of wellness lectures and team-based exercise sessions with 64% of participants reporting improvement in their physical health and mental well-being.⁸ In the years that followed, interest in promoting neurosurgeon wellness grew slowly, however it took an unexpected and unprecedented event to bring wellness to the forefront of medicine.

NEURO SURGERY



PUBLICATIONS

The Accelerant

In March 2020 the WHO declared the COVID-19 outbreak a global pandemic, which subsequently served as the accelerant that set ablaze the interest and study of neurosurgeon wellness. At the beginning of the pandemic, with operating rooms and clinics closed, surgeons found themselves with more time at home and the unique opportunity to focus on their own wellness. In fact, during the first few months of the pandemic, a wellness survey of attending neurosurgeons in the U.S. identified the prevalence of burnout to be notably lower, 20.4%, than pre-pandemic estimates.⁹ However, the same study noted significant concerns burdening neurosurgeons, including “uncertainty regarding future changes in healthcare” and “uncertainty of future earnings.”⁹ Two years later, uncertainty regarding COVID-19 is the status-quo and near crisis-level hospital staffing shortages have done little to improve neurosurgeon wellbeing.

While early in the pandemic much was published on the detrimental effects of the pandemic on physician wellbeing, more recently clinicians and researchers are focusing on identifying factors that promote wellbeing and reduce burnout, including 11 studies submitted for publication in *Neurosurgery* and *Neurosurgery Open*. The

results of these studies will be integral to the development and implementation of wellness programs within neurosurgery.

Regardless of the generation to which they are born, neurosurgeons are defined by and admired for their resilience and grit. However, this does not make us immune to the detrimental effects of burnout, the effects of which have only been accelerated due to the COVID-19 pandemic. Fortunately,

the rise in the academic study of burnout and wellness is uncovering methods to sustain the resilience of current and future generations of neurosurgeons. The neurosurgery departments that recognize these data and adapt by developing and implementing structural changes to incorporate wellness will recruit and retain the highest quality neurosurgery residents and faculty. ■

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Neurosurgeons Speak Up:

We asked our readers,

“What brings you joy and purpose in neurosurgery?”

“Gratitude from a patient and going to sleep at night knowing that I made a difference.”

– Jeremy Hosein, MD

“Love the privilege that patients afford us in their most vulnerable moments.”

– Aladine Elsamadicy, MD

“OR harmony. When the whole team just gets it and all the pieces fall into place and when your patient is over the moon happy”

– Christina H Wright, MD, MPH

“Being able to help patients when they’re at their worst, and teaching future generations of neurosurgeons to be able to do the same.”

– Khoi Than, MD

“Love that moment in the OR when you feel total concentration. It’s peaceful, connected, and purposeful :)”

– Theresa Williamson, MD

“For me it’s teaching those residents and watch them actually get excited by learning. Magical - 2 hours go by before you know it.

– James M. Wright III, MD

“The privilege and opportunity to leverage all your knowledge and surgical skills to help someone who’s not exactly having a great day!”

– Hoon Choi MD PhD

“Graduation day, when you witness the culmination of seven years of arduous training and the evolution of a trainee into a colleague.”

– Elad Levy, MD

“Getting patients through difficult neurosurgical crises; finding new concepts and techniques that advance our field; and working in that amazing otherworld of the brain’s subarachnoid spaces.”

– Michael T. Lawton, MD

FOUNDATION UPDATE



CNS
Foundation

Martina Stippler and **Alexander Khalessi**, Co-Chairs of the CNS Foundation are proud to provide a video update about the CNS Foundation:



- New Board members added from each sub-specialty Section.
- Diversity, Equity, and Inclusion, added as the fourth pillar of support.
- Healthy financial Status: \$4 million raised in less than four years.
- Annual donations from more than 250 individual donors.
- Generous industry supporters including Medtronic, Stryker, Viz. Ai, Penumbra.

View the full update at youtube.com/user/cnsvideolibrary/ and help us support neurosurgeons around the world. We thank you for your support.

Ambitious Goal: \$5 million in five years to support advancement of neurosurgery worldwide.

The four CNS Foundation pillars of support:

- Diversity, Equity and Inclusion (**New pillar!**)
- Clinical Scientist Career Development
- International Philanthropy
- CNS Guidelines



Alexander Khalessi



Martina Stippler



*Dr. Todd Hollon,
University of Michigan
2021 NINDS/CNS Getch K12
Scholar Award Recipient*

CNS commits \$1.2 million to NIH partnership for annual NINDS/CNS K12 Scholar Award; **Todd Hollon, MD**, of University of Michigan named fourth Getch Scholar.

The Congress of Neurological Surgeons (CNS) announced a five-year, \$1,200,000 pledge to the CNS Foundation in support of annual K12 awards in partnership with the National Institutes of Health (NIH) and the Foundation for National Institutes of Health (FNIH).

Beginning September 2022, the NINDS/CNS Getch K12 Scholar Award will become an annual award to fund an early career neurosurgical clinician with two-years of fully funded, uninterrupted investigation. Introduced in 2016, and now considered one of neurosurgery's most prestigious awards, "The Getch," was named in honor of the late Christopher C. Getch, MD, President of the CNS in 2011.

"The Getch is one of neurosurgery's most prestigious and productive awards for developing our next generation of clinician scientists," said Nicholas Bambakidis, CNS President. "Doubling our investment in the NIH and the Getch award will increase the opportunities for early career clinicians in their research. We are excited to do this for the patients of the future."

The CNS Foundation is pleased to announce the fourth recipient of the NINDS/CNS Getch K12 Scholar Award, Dr. Todd Hollon, a neurosurgeon who specializes in brain tumors at the University of Michigan. Dr. Hollon is also a past winner of the CNS Data Science Abstract Award.

Applications Open!

Future Women Leaders of Neurosurgery Scholarship March 1 – April 30, 2022

The Future Women Leaders in Neurosurgery Scholarship (FWLN Scholarships) at the CNS Foundation annually provides multiple awards to female neurosurgeons early in their medical career so they may attend enriching leadership opportunities of their choice. International applicants are accepted.

Make a gift in support of future female leaders like Kimberly Hoang. Visit the [foundation.cns.org](https://www.foundation.cns.org) and contribute to the Future Women Leaders in Neurosurgery Scholarship.

"I attended the Harvard Career Advancement and Leadership Skills for Women in Healthcare Course. This was a four-day course encompassing a wide variety of skill sets, networking, lectures by content experts...female physicians and healthcare providers from all disciplines throughout the country.

I am deeply grateful to the CNS Foundation for making leadership education for early career neurosurgeons a priority and for putting funding behind that priority, so that folks like myself can further their education and hopefully, the role of women in neurosurgery. I encourage anyone interested in applying for the scholarship to absolutely do so."



*Kimberly Hoang, Emory University
2021 FWLN Awardee*

Great Start to Third Tumor Miami Observership!

Martín Andrés Merenzon of Buenos Aires, Argentina (pictured far right) began his three-month observership on Monday, March 7th. He joins the Miami Brain Tumor team led by **Ricardo Komotar** and will work side-by-side with **Alexis Morell**, the first winner of this lauded international experience.

CNSF: What has your first week been like, working in Miami with Dr. Komotar, Dr. Ivan and the team?

MAM: I got the chance to observe more than fifteen brain tumor surgeries last week (including awake surgeries and tailor-made surgical techniques used here such as the minimally invasive keyhole temporal lobectomy approach), to participate in clinic consults, and to attend the Department's grand rounds. Also, I started to get to know the different research projects that they are working on. I found especially interesting Dr. Ivan's augmented reality project. Finally, I had the chance to see a couple of patients treated with Laser Interstitial Thermal Therapy. This Neurosurgery Department is a world leader in this advanced surgical procedure. As this cutting-edge treatment is not available in my country, I'm trying to learn all about it.

CNSF: Do you have a mentor or an experience that first gave you the idea to pursue neurosurgery?

MAM: The life-changing experience that guided me to choose Neurosurgery was doing a sub-internship in the Neurosurgery Department at Yale-New Haven Hospital in 2013. This was part of an exchange program with Yale University to which I applied among other Argentinean students and for which I won a scholarship from the University of Buenos Aires. I'll always be grateful for that amazing opportunity. I recall a patient that came in through the emergency department with sudden altered mental status due to a cerebellar hematoma. I was shadowing the on-call resident that night, so I got to participate in the surgery with the chief of residents and the attending. Due to the size of the hematoma, if the patient was not surgically treated, she was going to die. Fortunately, the surgery was successful. When I saw the patient being discharged a few days later with her family, I knew at that moment that I wanted to learn how to save a life as it had happened that night.

Would you like to support international neurosurgeons like Dr. Merenzon? Please visit foundation.cnsf.org/donate to make more of these valuable experiences possible! 🇺🇸



Pictured from left to right: Alexis Morell (2019 IOP awardee) Francisco Marco del Pont, Ricardo Komotar, Martín Andrés Merenzon

1

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INSIDE THE CNS



Washington Committee Report



Katie O. Orrico, Esq

Neurosurgeon Introduces President Biden During Cancer Moonshot Announcement

On Feb. 2, President **Joseph R. Biden, Jr.** [announced](#) a series of new steps to “reignite” the Cancer Moonshot initiative, with the goal of “ending cancer as we know it” by halving the number of cancer deaths in the United States in the next 25 years. The Cancer Moonshot was initially established in 2016 by then-President Barack Obama to support cancer research and enable progress in treatment and care. It was originally authorized through the 21st Century Cures Act ([P.L. 114-255](#)) in December 2016, which included \$1.8 billion for the Moonshot over seven years.

In introducing the president, Edjah Nduom, MD, associate professor of neurosurgery at Emory University School of Medicine and member of the CNS Executive Committee, addressed the importance of the initiative in catalyzing cancer research. Referring to the president as the country’s “patient advocate-in-chief,” Dr. Nduom stated that “as a neurosurgeon scientist, constantly thinking of ways to treat cancer patients, to fight cancer, and seeing countless patients every year, I can confidently say this is the most exciting moment in the history of our field.”

Texas Court Strikes Down Key Part of Biden Administration’s Surprise Billing Rules

On Feb. 23, a federal judge in the U.S. District Court for the Eastern District of Texas [issued a decision](#) vacating parts of a Biden Administration rule implementing the ban on “surprise billing.” The decision was issued in response to a lawsuit filed by the Texas Medical Association (TMA) challenging the independent dispute resolution (IDR) process included in the No Surprises Act ([P.L. 116-68](#)) interim final rule. When considering payment disputes between health plans and providers for out-of-network care, the rule requires arbiters to select the offer closest to the insurer’s median contracted rate. This provision would lead to lower payments and unduly favors insurers, upsetting a careful balance established by Congress when it crafted the bill. According to the court, the No Surprises Act is unambiguous regarding the IDR process in stating that the qualifying payment amount (QPA) — or median in-network rate — is only one of several factors to consider resolving a billing dispute between an out-of-network provider and an insurer.

This provision of the rule is now no longer in effect nationwide, and the Biden Administration is reviewing the court’s

decision and considering whether to appeal the ruling. In the meantime, CMS announced that it notified providers, health plans, IDR entities and others of steps the administration is taking to conform to the court’s order. Click [here](#) for that information.

District of Columbia Court Hears Arguments in No Surprises Act Lawsuit

On March 21, the U.S. District Court for the District of Columbia held a hearing in the consolidated *Association of Air Medical Services v. U.S. Department of Health and Human Services et al.* case (the court consolidated the Association of Air Medical Services and American Medical Association (AMA)/American Hospital Association (AHA) [lawsuits](#) into a single action). This case involves similar issues as those considered by the court in the TMA lawsuit. In January, the Congress of Neurological Surgeons (CNS) and the American Association of Neurological Surgeons (AANS) filed an [amicus brief](#), along with the Physician Advocacy Institute, supporting the AMA/AHA lawsuit.

U.S. District Judge **Richard Leon** suggested that he is in no hurry to issue a ruling, pending the Biden Administration’s

> THE COURT WAS SPOT-ON IN DECIDING IN FAVOR OF THE TEXAS MEDICAL ASSOCIATION IN ITS LAWSUIT CHALLENGING THE RULES FOR RESOLVING OUT-OF-NETWORK PAYMENT DISPUTES. THE NO SURPRISES ACT INCLUDED A FAIR AND BALANCED PROCESS FOR DETERMINING THESE PAYMENTS, SO IT IS NOW INCUMBENT UPON THE BIDEN ADMINISTRATION TO REISSUE A RULE THAT COMPLIES WITH THE COURT’S RULING AND THE STATUTE AS WRITTEN BY CONGRESS. <

John K. Ratliff, MD, Chair, Washington Committee

decision on whether to appeal the Texas case and how it handles this issue in the final rule, which is expected to be issued in May. The final rule could make the lawsuits irrelevant.

Neurosurgery-Led Coalition Seeks COVID-19 Medical Liability Protections

On Feb. 4, the Health Coalition on Liability and Access ([HCLA](#)) urged Senate Health, Education, Labor and Pensions Committee leaders to incorporate COVID-19-related liability protections in the Prepare for and Respond to Existing Viruses, Emerging New Threats (PREVENT) Pandemics Act, which is under development. The CNS and

the AANS serve as the vice-chair of HCLA. They have been urging Congress to pass a uniform set of liability protections — such as those included in [H.R. 3021](#), the Coronavirus Provider Protection Act — for medical professionals who responded to the COVID-19 pandemic. The letter also urges the senators to include the Good Samaritan Health Professionals Act ([S. 2941](#)) in the PREVENT Pandemics Act ([S. 3799](#)). This legislation would provide medical liability protections to health care professionals who volunteer in a public health emergency or federally declared disaster.

In a related effort, on March 9, HCLA urged House Energy and Commerce Committee

leaders to incorporate the Good Samaritan Health Professionals Act ([H.R.5239](#)) and H.R. 3021 in any future legislation regarding pandemic response following a [hearing](#) titled “Lessons from the Frontline: COVID-19s Impact on American Healthcare.”

Links to the Senate letter and the House letter, are available in the online issue of *Congress Quarterly*.

Neurosurgery Comments on CMS Prior Authorization Proposals

On March 7, the CNS and the AANS joined the Regulatory Relief Coalition to urge CMS to implement the Improving Seniors’ Timely Access to Care Act ([H.R. 3173/S. 3018](#)) into

> STUDIES SHOW THAT MORE THAN HALF OF PHYSICIANS REPORT EXPERIENCING SUBSTANTIAL SYMPTOMS OF BURNOUT, AND THE PANDEMIC HAS EXPOSED THE FRAGILITY OF OUR HEALTH CARE WORKFORCE. THE DR. LORNA BREEN HEALTH CARE PROVIDER PROTECTION ACT WILL BRING ESSENTIAL RESOURCES TO HELP SUPPORT PHYSICIAN WELLNESS, AND THE CNS AND AANS WERE PROUD TO ADVOCATE FOR PASSAGE OF THIS CRITICAL LEGISLATION. <

John K. Ratliff, MD, Chair, Washington Committee

regulations governing Medicare Advantage plans. Subsequently, as members of the Alliance of Specialty Medicine, the CNS and the AANS also responded to the agency's request for information, also encouraging CMS to adopt the provisions incorporated into the Improving Seniors' Timely Access to Care Act.

The Regulatory Relief Coalition letter and the Alliance of Specialty Medicine letter are available in the online issue of *Congress Quarterly*.

CNS and AANS Call on Congress to Hold Hearings on Medicare Fee Schedule

On Feb. 7, the CNS and the AANS joined more than 20 surgical organizations in calling on Congress to hold hearings on the future of the Medicare physician fee schedule and the status of other policies included in the Medicare Access and CHIP Reauthorization Act of 2015, including the Quality Payment Program (QPP). The letter points out that the current system results in drastic payment cuts each year. Although Congress has intervened to stop these cuts for the past two years, policymakers must devise a long-term solution to stabilize the system. On Feb. 18, the neurosurgical groups also joined the Alliance of Specialty Medicine, requesting hearings or roundtables to

explore options for fixing the fee schedule and QPP. Finally, the CNS and the AANS joined 94 national health care organizations in sending a similar letter to Congress.

The surgery letter, the Alliance letter and the broad coalition letter are available in the online issue of *Congress Quarterly*.

Neurosurgery Urges Congress to Extend Medicare Sequester Moratorium

On Feb. 28, the CNS and AANS joined nearly 50 other health care stakeholder groups in a letter urging Congress to extend the moratorium on the 2% Medicare sequester until the end of the public health emergency (PHE). The PHE is currently set to expire on April 16, though it is expected that the administration will extend the expiration for at least an additional 90 days. In the letter, the groups thanked Congress for extending the moratorium on the Medicare payment sequester through March 31 in the Protecting Medicare and American Farmers from Sequester Cuts Act ([P.L. 117-71](#)). However, under the law, the full sequester will resume on July 1, at a time when physician practices and hospitals continue to recover from the COVID-19 pandemic.

To read the letter, visit the online issue of *Congress Quarterly*.

Physician Wellness Legislation Passes Signed into Law

On March 18, President **Joseph R. Biden, Jr.**, signed the Dr. Lorna Breen Health Care Provider Protection Act ([P.L. 117-105](#)) into law. Endorsed by the CNS and the AANS, this new law establishes initiatives to address suicide, mental health, burnout and resiliency of health professionals. The measure includes programs at the Health Resources and Services Administration to promote evidence-informed strategies to improve well-being among health care trainees and professionals and a program at the Centers for Disease Control and Prevention to encourage health professionals to seek treatment for mental and behavioral health concerns.

The law was named after **Lorna Breen, MD**, an emergency physician at New York-Presbyterian Allen Hospital working on the front lines of the pandemic, who died by suicide on April 26, 2020. In the wake of her loss, her family and other physicians across the country are pushing for policy changes to make it easier for physicians to seek out mental health care.

Washington Committee/AMA Fellows Selected

The 2022-23 Washington Committee/AMA fellows have been selected. The fellowship provides neurosurgical residents and fellows an opportunity for a richer, more diverse and actionable experience in health care policy and advocacy. **Laura Stone McGuire, MD**, a PGY-7 resident at the University of Illinois at Chicago, will serve as the primary fellow and delegate to the AMA's Resident and Fellow Section (RFS). **Michael J. Feldman, MD**, a PGY-6 resident at Vanderbilt University, was appointed as an alternate fellow and will serve as an alternate delegate to the AMA's RFS. **Aladine A. Elsamadicy, MD**, a PGY-4 resident at Yale University, and **Jordan C. Xu, MD**, a PGY-5 resident at the University of California, Irvine, were also selected as alternate fellows. 

IMAGES IN NEUROSURGERY

Catheter Tip Granuloma as a Complication of Pain Pump Placement

A 55-year-old man with a past medical history of degenerative scoliosis and T10 to pelvis fusion, who subsequently underwent pain pump placement for severe low back and abdominal pain associated with Crohn's disease, presented with worsening pain and was found to have a catheter tip granuloma (Fig 1A and B). At the time pain pump was infusing a combination of hydromorphone 20mg/ml and fentanyl 100mcg/ml. He was found to have a pump site infection due to which pump and intrathecal catheter were explanted. Subsequent follow up MRI imaging 3 months after pump and catheter removal demonstrated near resolution of catheter tip granuloma (Fig 2A and B).

A catheter tip granuloma is rare and occurs in about 2-3% of patients with an intradural catheter. It is associated with an inflammatory response most commonly from a morphine infusion but has been reported with combination, non-narcotic and baclofen infusions as well.^(1,2) It is typically associated with increasing pain necessitating increasing doses of medication, without improvement in pain. Neurological deficits are rare but can occur from focal spinal cord compression associated with a large granuloma. In the absence of neurologic deficits, treatment includes temporarily stopping the pump, switching pump medications or catheter replacement. If neurological deficits are significant or persist despite above mentioned measures, then a laminectomy and intradural resection of mass can be considered. Postoperative worsening of symptoms is common, but usually temporary, due to the mass being densely adherent to the spinal cord, therefore typically only partial resection is performed.^(1,2) ❏

Submitted by: Mohamad Abouelleil, MD;
Rushna Ali, MD

Affiliation: Division of Neurosurgery, Spectrum Health Medical Group, Grand Rapids, MI



Figure 1A: Axial view of CT myelogram depicting a left posterolateral intradural extramedullary granuloma at T7 causing mild compression on the spinal cord.



Figure 1B: Sagittal view of CT myelogram depicting an intradural lesion at T7.

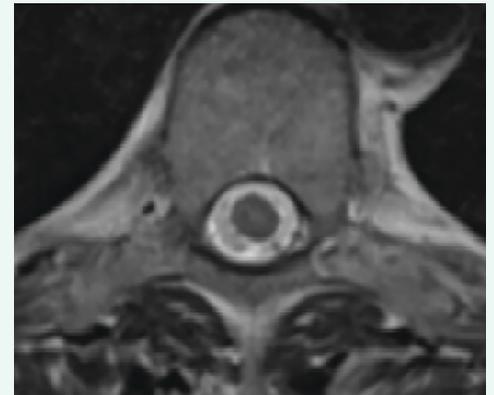


Figure 2A: Axial view T2 MRI of thoracic spine demonstrating near resolution of catheter granuloma at T7

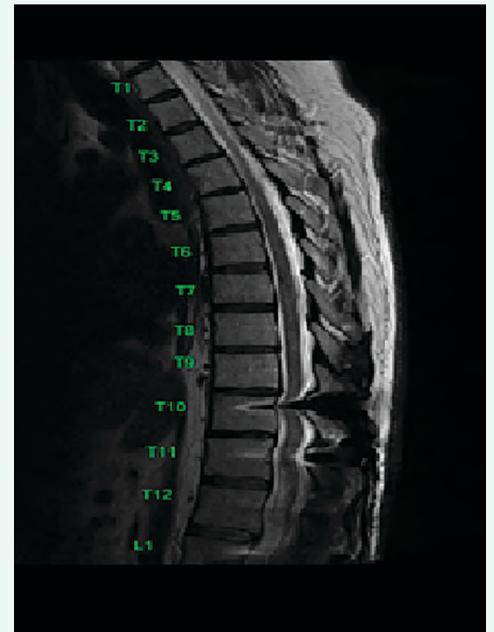


Figure 2B: Sagittal view T2 MRI of thoracic spine depicting near resolution of catheter granuloma at T7

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