


NSPC PRACTICE JOURNAL
WINTER 2022



NSPC: FOR BRAINS, SPINES AND HUMAN BEINGS

***THE LARGEST, PRIVATE BRAIN & SPINE
SURGICAL PRACTICE IN THE NORTHEAST***



NSPCTM
Brain & Spine Surgery

For Brains, Spines and Human Beings

LETTER FROM OUR LEADERS

Dear Colleague or Patient:

Since 2020, the spread of Covid-19 changed everything. The effect the pandemic had on our personal lives and professional practices had no precedent. Yet, like you, the physicians, and staff of NSPC Brain & Spine Surgery (NSPC) persevered, adapted, and continued to serve the community. In fact, over the past few years we've added neurosurgeons to our medical staff.

For over 60 years, the physicians of NSPC Brain & Spine Surgery (NSPC) have been privileged to provide excellent neurosurgical care to generations of patients from Long Island, and beyond. You can be sure our devotion to patient care is stronger than ever and this latest edition of our practice journal offers evidence of this commitment to care.

Inside, you'll learn more about the advanced technologies and new procedures that the surgeons of NSPC Brain & Spine Surgery (NSPC) are using to treat neck, back, brain, and neurovascular conditions.

Thank you for your confidence and the trust you've placed in us.



MICHAEL H. BRISMAN M.D., F.A.C.S.
Attending Neurosurgeon & Chief Executive Officer
NPSC Brain & Spine Surgery

Michael H. Brisman



WILLIAM J. SONSTEIN M.D., F.A.C.S.
Attending Neurosurgeon & President
NPSC Brain & Spine Surgery

William J. Sonstein

11 NSPC Brain & Spine Surgery Physicians Named to 2022 “Castle Connolly Top Doctors” NY Metro List



Jeffrey A. Brown, M.D.
Neuropathic Facial Pain



Jonathan L. Brisman, M.D.
Neurovascular Neurosurgery
Endovascular Neurosurgery
Brain Tumors



John A. Grant, M.D.
Pediatric Neurosurgery
Neurovascular
Neurosurgery
Brain Tumors



Zachariah M. George, M.D.
Spine Surgery



Brian J. Snyder, M.D.
Parkinson's Surgery
Epilepsy Surgery
Pain Surgery



John Pile-Spellman, M.D.
Neuroendovascular Surgery



Benjamin R. Cohen, M.D.
Spine Surgery



Sachin N. Shah, M.D.
Spine Surgery



Stephen T. Onesti, M.D.
Spine Surgery



Vladimir Y. Dadashev, M.D.
Spine Surgery



Yusef Imani, M.D.
Spine Surgery

11 of the 20 physicians associated with NSPC Brain & Spine Surgery have been named to the latest edition of Top Doctors: New York Metro Area, an annual listing compiled by Castle Connolly, a New York City research and information company.

They are: Jeffrey A. Brown, M.D. (Neuropathic Facial Pain Surgery), Jonathan L. Brisman, M.D. (Neurovascular and Brain Surgery), Benjamin R. Cohen, M.D. (Spine Surgery), Vladimir Y. Dadashev, M.D. (Spine Surgery), Zachariah M. George, M.D. (Spine Surgery), John A. Grant, M.D. (Pediatric Neurosurgery), Yusef Imani, M.D. (Spine Surgery), Stephen T. Onesti, M.D. (Spine Surgery), Sachin N. Shah, M.D. (Spine Surgery), John Pile-Spellman, M.D. (Endovascular Neuroradiology), and Brian J. Snyder, M.D. (Pain and Parkinson's Surgery).

“It’s a pleasure to congratulate our colleagues and partners for receiving this honor,” said Michael H. Brisman, M.D., the chief executive officer of Rockville Centre, NY-based NSPC. “Our practice has provided patients from Long Island, and elsewhere, with the most compassionate and comprehensive brain, back, and neck care available for over 60 years. The selection of these eleven physicians to the 2022 Top Doctors: New York Metro Area listing confirms a tradition of clinical, and patient-centered excellence at NSPC.”

For decades, Castle Connolly has been conducting a peer-reviewed survey to select the region’s top doctors based on the theory that medical professionals are best qualified to assess the qualifications of other practitioners. Licensed physicians vote online for those doctors they consider outstanding. A Castle Connolly doctor-led research team then counts the nominations and vets the nominee pool with the aid of a number of screens, including confirming board certifications and investigating disciplinary histories. In 2020, Castle Connolly was acquired by the Everyday Health Group, a division of J2 Global Inc.

The Top Doctors: New York Metro Area listing includes those physicians whom Castle Connolly has determined to be in the top ten percent of the region’s physicians – approximately 6,000 in all.

In Memorium: Neurosurgeon Stephen Burstein, a Founding Member of NSPC Brain & Spine Surgery



Stephen D. Burstein, M.D., F.A.C.S., a founding member of Rockville Centre, NY-based NSPC Brain & Spine Surgery, died in June 2021. He was 87 years old.

Dr. Burstein served for decades as the chief of neurosurgery at both Mount Sinai South Nassau (formerly known as South Nassau Communities Hospital) in Oceanside, NY, and Franklin General Hospital (now known as Long Island Jewish Valley Stream) in Valley Stream, NY. He successfully treated generations of Nassau residents, as well as patients from across the nation, during the half-century he practiced neurosurgery on Long Island.

A graduate of the University of Michigan, Dr. Burstein received his medical degree from the State University of New York (SUNY) Downstate Medical Center, Brooklyn, New York, where he was the president of the Alpha Omega Alpha (AOA) medical honor society.

Dr. Burstein went on to complete a surgical internship at Johns Hopkins Hospital in Baltimore, MD, and a fellowship in neurological surgery at the Mayo Clinic, Rochester, Minn. He also received a master's degree in neurosurgery from the University of Minnesota.

Dr. Burstein served as a Lieutenant in the United States Navy Medical Corps and was a battalion surgeon for the 3rd and 5th Marine divisions during the Korean War.

NSPC Brain & Spine Surgery CEO Michael H. Brisman, M.D., observed, "I had the privilege of knowing Dr. Burstein for nearly 25 years. He was a wonderful doctor and a wonderful human being. He was loved by so many doctors and patients. His great mind was exceeded only by his enormous heart."

A member of many prestigious medical societies and organizations, Dr. Burstein had served as the president of the New York State Neurosurgical Society. He also found time to teach and make significant contributions to academic literature.

When he wasn't practicing medicine, Dr. Burstein was a devoted husband, father, and grandfather, an avid New York Mets baseball fan, and a long-time devotee of Broadway and NYC performing arts.

Patient Testimonial: Minimally Invasive Spine Surgery Ends Years of Back and Leg Pain



DONALD S. KRIEFF D.O.
Spine Surgery



Scan to learn more about Dr. Krieff

Osiel Delgado, a 40-year old cardiac technician from Texas, suffered with chronic back and leg pain for 17 years. Unable to sit for more than five minutes at time, he struggled to go to work and spend time with his family.

Mr. Delgado knew he had to find relief. So, he asked his friend, Miguel Gonzales, an experienced neurosurgical physician assistant (PA) with NSPC Brain & Spine Surgery in New York, for a recommendation.

Since non-operative care hadn't helped, Miguel urged his friend to come to New York and consult with Donald Krieff, D.O., a board-certified neurosurgeon at NSPC who specializes in minimally invasive spine surgery. Mr. Delgado agreed and flew to New York for an appointment with Dr. Krieff. After reviewing his imaging studies, Dr. Krieff could see that two herniated lumbar discs were the cause of Mr. Delgado's chronic back and leg pain.

He met with Mr. Delgado and recommended a minimally invasive spinal surgery (MISS) procedure, called a microdiscectomy, as the best treatment for the herniated discs. The surgery was performed the next day at St. Joseph Hospital in Bethpage, NY.

Upon arriving in New York, Mr. Delgado needed help from three EMS technicians to get him into the hospital, because his severe leg pain made it impossible for him to walk. On the same day as his surgery, he was able to stand and move about his room with no assistance.

The pain and pressure he had become so accustomed to feeling in his back and legs was gone. Within days, he returned home to Texas to return to a career he values, a family he loves, and life without limitations.



Neurosurgeon Donald Krieff (center) visits patient, Osiel Delgado, at St. Joseph Hospital in Bethpage, NY, after his surgery.

NSPC Brain & Spine Surgery, Queens Medical Society Launch Online CME Platform for Doctors, and Physician Assistants

Leaders of the Academy of Medicine of Queens County and NSPC Brain & Spine Surgery (NSPC) have joined to launch a new online, Continuing Medical Education (CME) Platform called, "NSPC CME NOW."

This no-cost service enables Queens Medical Society members, as well as community physicians (M.D. and D.O.) and physician assistants (PA), to earn AMA PRA Category 1 credits by enrolling in and completing Patient-Based Case Studies and Webinars online on desktop or mobile devices. A variety of subject areas will be available, including Neurovascular, Spine, Brain Tumors, and other Neurosurgical Conditions.

To date, eight neurovascular case studies have been credentialed for CME by the Academy of Medicine of Queens County. Course topics include Dural Arteriovenous Malformation (AVM), Symptomatic Near-Occlusion of the Carotid Artery, Ruptured Basilar Aneurysm, Right Vertebral Artery Compression Syndrome, and Central Retinal Artery Occlusion (CRAO).

According to John Pile-Spellman, M.D., a Partner and Attending Interventional Neuroradiologist at NSPC, "For the last two years, it was so hard to meet other physicians for dinner or conferences to discuss interesting cases. So my colleagues and I were eager to develop a safe, convenient way for us to share our clinical insights with other doctors in the community and provide them with the added benefit of being able to earn CME while doing it. Our partners at the Queens Medical Society recognized the need, too, and helped us create a new digital platform for learning and collaborating."

**INTRODUCING
NSPC CME NOW**

A New, No Cost, Online Continuing Medical Education (CME) Platform. Earn AMA PRA Category 1 Credits for Completing Patient-Based Case Studies & Webinars.



Scan with your mobile device to select and register for your CME course

Record Number of Schools, Teams Enter 4th NSPC Science Competition

A record number of high schools and teams have entered the fourth annual NSPC Brain & Spine Surgery (NSPC) Health Science Competition (HSC), a program of the Center for Science Teaching & Learning (CSTL). The 2022 program combined both an online, “virtual” competition to select ten finalists in each of five categories and an “actual” finals event held at the CSTL headquarters in Rockville Centre, NY, on May 18, 2022.

The NSPC Health Science Competition is available only to Nassau and Suffolk County high school teams. This year, nearly 340 teams representing 40 Long Island schools competed for over \$80,000 in score-based awards.

To enter the competition, team members had to create a Google site and upload images of either their poster board/digital poster board or a PowerPoint presentation, and an 8-minute video in which team members can be seen explaining their project.

“As leaders in the medical profession, we must focus on inspiring and motivating young people to take interest in STEM education and pursue careers in health and science,” Michael H. Brisman, an attending neurosurgeon and CEO of NSPC Brain & Spine Surgery, said. “This is especially important with the high demand for health care and medical science positions, locally and nationally.”

Student teams are judged in one of five categories: Behavioral Sciences; Biology-Medicine/Health; Biology-Microbiology/Genetics; Health Related Biochemistry/Biophysics and Bioengineering and Computational Biology.

The five first place winners in the 2021 competition were: Lily Li of Jericho Senior High School in the “Behavioral Sciences” category; Griffin Hon of Syosset High School in the “Bioengineering and Computational Biology” category;

Benjamin Yacht of Plainview-Old Bethpage JFK High School in the “Biology-Microbiology/Genetics” category; Ivan Ge of Ward Melville High School in the “Biology-Medicine/Health” category, and Jessica Guo of Ward Melville High School in the “Health Related Biochemistry & Biophysics” category. Each first-place winner received a \$5,500 prize.



“The NSPC Health Science Competition is now more important than ever,” observes Michael H. Brisman M.D., a senior attending neurosurgeon and chief executive officer of NSPC Brain & Spine Surgery (NSPC). “The 2020 and 2021 school years presented many challenges for students and educators. But the young people who entered our competition persevered,” notes Dr. Brisman, “and continued to engage with their studies. They were brilliant and inspiring. Their understanding of medicine and health-related subjects was impressive. These students are exactly the people we need to address the high demand for STEM, health science, and healthcare-related jobs here on Long Island and across the nation.”

Pictured above: Michael H. Brisman, M.D., Chief Executive Officer, NSPC Brain & Spine Surgery (center), congratulates four of the first-place winners of the 2021 NSPC Health Science Competition at the Center for Science Teaching & Learning. From left to right, Lily Li of Jericho Senior High School; Jessica Guo of Ward Melville High School; Griffin Hon of Syosset High School, and Ivan Ge of Ward Melville High School.

NSPC Brain & Spine Surgery Debuts Mobile Service at Islip Town Offices

NSPC Brain & Spine Surgery, Long Island's largest independent neurosurgery practice group, has launched a mobile service to make it easier for people with an acute or chronic spine or brain condition to get examined by an experienced neurosurgeon. Housed in a customized 26-foot van, the NSPC "mobile office" is equipped to visit work sites, public offices, and other locations anywhere in Nassau, Suffolk, or Queens Counties.



Town of Islip Supervisor Angie Carpenter joined NSPC neurosurgeon William Sonstein, M.D. (right) at the debut of the new NSPC Mobile Service in Islip, NY. Nearly a dozen town employees were examined aboard the customized 26-foot van seen here during a day-long visit to the office of the Town of Islip on Wednesday, Jan. 6, 2022. Rockville Centre-based NSPC Brain & Spine Surgery launched the mobile service to make it easier for people with a spine condition to get examined by an experienced neurosurgeon.

Photo credit: Dan Goodrich, Town of Islip

According to William S. Sonstein, M.D., President, NSPC Brain & Spine Surgery, the launch of "NSPC Mobile" was driven, in part, to accommodate patients who might be reluctant to visit a medical office because of Covid-19 concerns. In addition, he points out, many patients delay seeing a physician because they believe "they don't have the time for an appointment."

"I've been in practice for over 20 years," notes Dr. Sonstein, "and the reason many patients do not consult with me sooner is the difficulty associated with taking time off from their job or finding time in their personal schedule to make an appointment. Bringing a doctor to the workplace changes everything."

According to Dr. Sonstein, "The NSPC Mobile office provides patients with a convenient alternative to a conventional office because it will be available during the business day. Best of all, this new service may allow us to quickly determine if a more thorough exam is needed at an NSPC medical office or if a referral to another specialist is appropriate." A NSPC "telemedicine" follow-up appointment option is available, too.





“I JUST FEEL LIKE MY LIFE IS BACK NOW AND I CAN DO ANYTHING.”

MERRILL BANKS

Treated for Cervical Myelopathy

For many parents, moving their child into their freshman college dorm is stressful. For Merrill Banks, it was a triumph.

“I never thought I would have the physical capabilities to do all of the lifting and the moving,” Merrill remembered. “I just feel like my life is back now. And I can do anything.”

But before the big move happened, she sensed something was wrong. Her hands would freeze without warning, and the pain in her neck changed from a small, nagging feeling into something unbearable. She tried to explain some of it away by writing it off as stress or exhaustion—both are common issues for any single mom. But, when simple tasks like opening a Ziploc bag or closing a jacket became impossible, she knew she needed to act. She scheduled a consultation at NSPC to find out exactly what was going on.

Merrill got answers at her first appointment with Dr. Birk. His dedication to every patient's overall wellbeing was clear right from the start. “When I first met Dr. Birk, I felt comfortable right away,” she said. “He cared, he sat, and he listened to me. He actually took the time to be compassionate. On top of being an amazing neurosurgeon, he’s just a genuinely good human being. He’s just an all-around superhero.”

Dr. Birk diagnosed her with cervical myelopathy, which is spinal cord compression in the neck. For treatment, she needed a triple discectomy and fusion in her cervical spine to relieve the pressure placed on her spinal cord. Merrill was told to expect a significant reduction in her painful symptoms, but nothing prepared her for the actual post-op results – complete relief.



“Cervical myelopathy is a progressive, degenerative condition that can easily be ignored. Patients may ignore the tingling and numbness in their hands or their feet, loss of balance, loss of dexterity changes in their handwriting, and other subtle signs that their spinal cord is under pressure. If that is allowed to continue the natural history is such that the patient will experience a step-wise decline in their neurological function. And once they have those neurological deficits, they may be irreversible. The earlier the diagnosis, the higher the chance a patient has of making a full recovery.”

– DANIEL M. BIRK, M.D.

“I didn’t just see an improvement. I had 100% of my functioning back,” Merrill said. “I was back to myself. It felt great.”

Now, the little things in life are a cause for celebration. Preparing lunch for school, going for a walk, and everything else many take for granted are true moments of joy for Merrill. Much of her life is also dedicated to raising awareness in her community about the symptoms and available treatments for cervical myelopathy. The sooner people can get treatment, the better. Complete recovery without lingering symptoms is possible. And she is living proof.

Surgical View of a Microvascular Decompression (MVD) for Trigeminal Neuralgia



MICHAEL BRISMAN M.D., F.A.C.S.
Brain Surgery



Scan to learn more about Dr. Brisman

This is a 59 year old woman with 11 years of left sided facial pain consistent with trigeminal neuralgia. The pain was in her left jaw, cheek and forehead, in all three distributions of the trigeminal nerve. The pains were sudden, brief, severe, electric shocks of pain, that were triggered by light touch and responded to oxcarbazepine. She had tried gabapentin, but that had not been helpful. 10 years earlier she had undergone Gamma Knife treatment which had given her many years of relief, but now the pain had recurred. She had restarted her oxcarbazepine, which gave her partial relief of pain, but caused significant side effects, including dizziness and memory problems. Her prior MRI imaging had demonstrated contact of a blood vessel against the trigeminal nerve root. The patient was healthy other than some medically controlled hypertension, and wanted a potentially more permanent procedure to treat her trigeminal neuralgia. As such, she was set up for an MVD.

In Dr. Brisman's hands, the MVD usually takes about 2 hours once the operation has started. It is performed under general anesthesia, with the patient in the lateral position. Neuro-monitoring is performed throughout the case. A one and a half inch linear incision is made just behind the ear. A circular piece of bone is drilled out about the size of a quarter. The dura is opened up to the transverse – sigmoid sinus junction, and cerebrospinal fluid is released until the brain is fully relaxed. The microscope is brought in to provide both excellent lighting and magnification. Arachnoid dissection is performed so the vascular conflict against the nerve can be clearly visualized. Sometimes, the endoscope can also be used to clarify the anatomy. In this case, a loop of the superior cerebellar artery was causing significant compression and distortion of the trigeminal nerve root (Figure 1). The superior cerebellar artery is the usual offending blood vessel in cases of trigeminal neuralgia. Using micro-dissection techniques with appropriate micro-instruments, the artery is dissected off the nerve, and very small pieces of teflon felt (a non-absorbable material) are used to keep the artery from recompressing the nerve. The final image under the microscope shows the trigeminal nerve root fully decompressed, with resumption of normal anatomy (Figure 2). The dura is closed with permanent sutures. A small round titanium plate is used to reconstruct the skull defect, and the scalp is closed with absorbable sutures. A small sterile dressing is applied (Figure 3). Patients are usually discharged home the following day.

This patient did very well. After surgery her pain was completely gone, and she was able to discontinue her oxcarbazepine. Given the surgical findings of a clear and significant vascular conflict, her trigeminal neuralgia pain is likely cured.

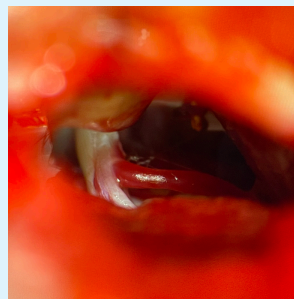


FIGURE 1
Intra-operative microscope image of the compressed trigeminal nerve root.

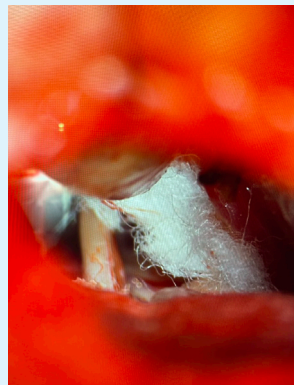


FIGURE 2
Intra-operative microscope image of the trigeminal nerve root fully decompressed.



FIGURE 3
Post-operative photo. Patients are usually discharged home the day after an MVD.

Minimally Invasive Solution for Spinal Revision Surgery



XAVIER P. J. GAUDIN, D.O.
Spine Surgery



Scan to learn more about Dr. Gaudin

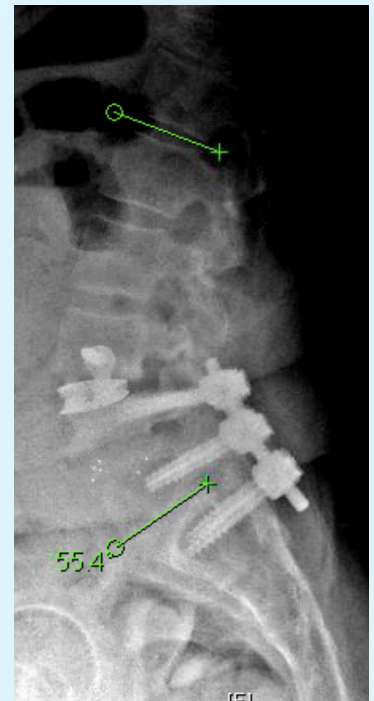
This is a 55 year-old-female who presented with progressively worsening axial low back pain and left lower extremity radiculopathy. She had a previous L4 to S1 posterior laminectomy with interbody fusion by another spine surgeon about three year prior. Imaging demonstrated L3-4 adjacent segment degeneration with spinal instability and stenosis. She developed subsidence from her initial surgery, which resulted in loss of physiologic lordosis and accelerated the adjacent degenerative cascade. Her L4-S1 construct otherwise appeared to have a solid arthrodesis. Symptoms were debilitating and she had failed best medical management, therefore surgery was offered.

The goals of surgery were to achieve spinal stability and neural decompression, and to re-establish a physiologic sagittal alignment. She had co-morbidities that precluded a more conventional open posterior approach with hardware revision. Dr. Gaudin therefore elected to perform an L3-4 Minimally Invasive Direct Lateral Interbody Fusion with Plate. This allowed for stability through a large surface area interbody and lateral plate, indirect neural decompression by distracting the spinal canal and neuroforamina, and increased lordosis by lengthening the anterior column of the spine with placement of a hyperlordotic cage.

The patient tolerated the surgery well and attained near complete resolution of her preoperative chronic low back and leg pain. The incision was a little over one inch on her lateral side. Her postoperative pain was well managed given the indirect access to the spine which allowed for preservation of her paraspinal musculatures, and minimally invasive approach which maintained the integrity of the lateral abdominal wall muscle. She has discharged home on the day after surgery and was able to fully wean off her chronic narcotics.



PREOPERATIVE X-RAY
(39.4° lumbar lordosis)



POSTOPERATIVE X-RAY
(55.4° lumbar lordosis)

Levin DA, Hale JJ, Bendo JA. Adjacent segment degeneration following spinal fusion for degenerative disc disease. *Bull NYU Hosp Jt Dis.* 2007;65(1):29–36.

Louie PK, Varthi AG, Narain AS, Lei V, Bohl DD, Shifflett GD, Phillips FM. Stand-alone lateral lumbar interbody fusion for the treatment of symptomatic adjacent segment degeneration following previous lumbar fusion. *Spine J.* 2018 Nov;18(11):2025-2032.

Malham GM, Ellis NJ, Parker RM, Blecher CM, White R, Goss B, Seex KA. Maintenance of Segmental Lordosis and Disk Height in Stand-alone and Instrumented Extreme Lateral Interbody Fusion (XLIF). *Clin Spine Surg.* 2017 Mar;30(2):E90-E98.

Ohba T, Ebata S, Haro H. Comparison of serum markers for muscle damage, surgical blood loss, postoperative recovery, and surgical site pain after extreme lateral interbody fusion with percutaneous pedicle screws or traditional open posterior lumbar interbody fusion. *BMC Musculoskelet Disord.* 2017 Oct 16;18(1):415.

Hunt Hess Grade 1 Subarachnoid Hemorrhage (SAH)



JOHN GRANT M.D., F.A.C.S.
Neurovascular Neurosurgery



Scan to learn more about Dr. Grant

A 43-year-old man presented with a 4-day history of a constant headache. Initial CT Head demonstrated a very small Hunt Hess Grade 1 supra-sellar Subarachnoid Hemorrhage (SAH), prompting cerebral angiography, which confirmed a complex, wide-neck anterior communicating artery aneurysm (Figure 1). He underwent open microsurgical clipping of the aneurysm with preservation of the parent vessels and complete obliteration of the aneurysm (Figure 2). After monitoring and critical care management for SAH, he made a complete functional recovery, returning to all activities of daily living.

KEY LEARNING POINTS:

1. Severe new onset headache should prompt immediate medical attention and brain scanning to evaluate for potential high-risk pathologies, especially SAH and sentinel leaks from ruptured brain aneurysms.
2. Multi-disciplinary evaluation by a team of cerebrovascular surgeons and interventionalists should be performed to determine the optimal treatment and management strategies for often complex aneurysm geometries.
3. Microsurgical clipping represents a very effective option for definitive treatment and complete functional recovery in many patients.

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2. Microneurosurgical management of anterior communicating artery aneurysms. Hernesniemi J, Dashti R, Lehecka M, et al. Surg Neurol. 2008;70(1):8-29. doi:10.1016/j.surneu.2008.01.056

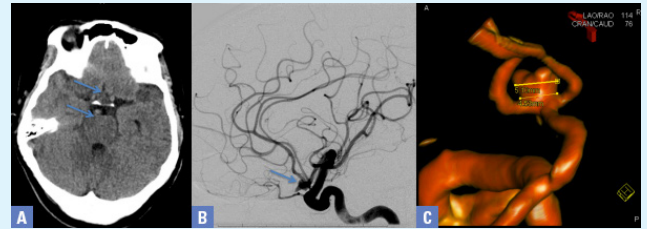


Figure 1: A) Non-contrast computed tomography of the patient's brain with faint, hyper-dense Subarachnoid Hemorrhage (SAH) in supra-sellar cisterns; B) Angiography of an ACOM Aneurysm with anterior beak, C) 3-D "Recon" image demonstrates complex morphology.

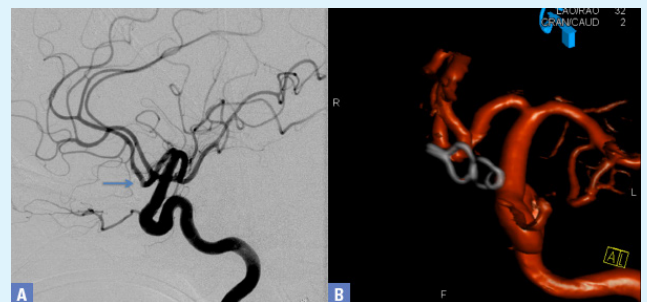


Figure 2: Post Microsurgical Clipping, A) Lateral angiogram, B) 3-D "Recon" image.

Thoracic Laminectomy Allows For Successful Removal of a Spinal Cord Mass



ZACHARIAH M. GEORGE, M.D.
Spine Surgery



Scan to learn more about Dr. George

A woman in her 50's presented with balance problems and mid back pain, radiating into the chest and abdomen region. She reported that her legs were weak and that they frequently gave out.

A thorough neurological examination revealed signs of thoracic myelopathy (altered leg strength, sensation, coordination, and abnormal gait).

Imaging revealed a thoracic intradural/extramedullary lesion with severe compression of the thoracic spinal cord (Figures 1, 2)

Surgical resection was recommended, given the symptoms in the setting of spinal cord compression and the high likelihood of continued enlargement. A thoracic laminectomy was performed, via a small midline incision, with total intradural resection of the lesion. Intraoperative and post-operative pathology was consistent with a schwannoma. Figures 3 and 4 show intraoperative films obtained with a high-powered microscope for magnification.

Post-operative MRI imaging demonstrated full resection to the mass (Figures 5 and 6)

The patient made a good neurological recovery. The pain that she felt around the chest and abdomen resolved. Her balance, sensation, and strength in the legs recovered fully. She had expected post-operative pain that resolved.

SUMMARY & DISCUSSION

1. Most intradural extramedullary tumors are benign. This means that although they can enlarge, they usually do not spread to other regions of the body. It also means that full removal of these masses can be curative.
2. Spinal tumors are classified based on their location into: a. Extradural (outside the nerve covering); b. Intradural and Extramedullary (inside the nerve covering, but not growing into and involving the spinal cord), and c. Intramedullary (involving and growing within the spinal cord).
3. Extradural masses tend to be the most common.
4. Most intradural extramedullary masses tend to be either a meningioma, neurofibroma, or schwannoma. They are usually cured if a complete resection is performed.



FIGURE 1
Sagittal MRI with contrast demonstrating contrast enhancing intradural thoracic spinal cord mass.

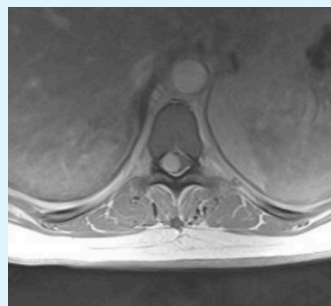


FIGURE 2
Axial MRI with contrast demonstrating contrast enhancing intradural thoracic spinal cord mass with severe spinal cord compression and displacement of the spinal cord to the left side.

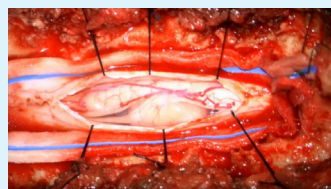


FIGURE 3
Intraoperative view with the dura opened and retracted, exposing the intradural neural anatomy and mass seen deforming spinal cord.

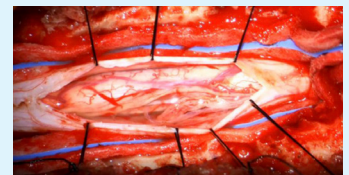


FIGURE 4
Intraoperative view after total removal of intradural mass. Frozen pathological pathology report suggested schwannoma.

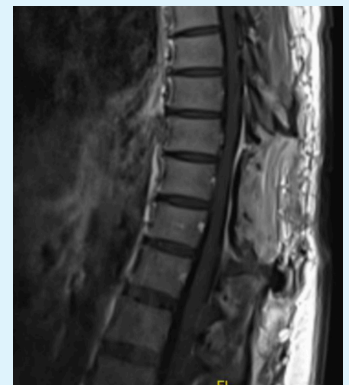


FIGURE 5
Post-operative contrast enhanced sagittal MRI showing full resection of spinal cord mass. Final pathology was consistent with schwannoma.

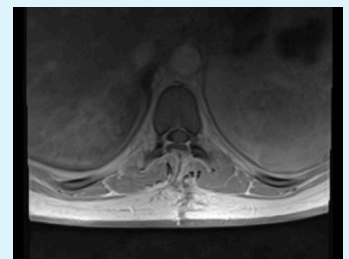


FIGURE 6
Post-operative contrast enhanced MRI that demonstrates full removal of mass and with the thoracic spinal cord showing re-expansion and midline positioning.

Atypical Convexity Meningioma



JONATHAN BRISMAN M.D., F.A.C.S.
Neurovascular Neurosurgery



Scan to learn more about Dr. Brisman

The patient is an otherwise healthy 80-year-old gentleman who presented with complaints of right frontal headaches and difficulty walking that had progressed over about three weeks. He was neurologically nonfocal. A CT scan without contrast (Fig. 1) showed a large right parietal mass with midline shift and cerebral edema.

A MRI with gadolinium (Fig. 2) confirmed the likely diagnosis of convexity meningioma, a benign neoplasm of the meninges. Given the location of the tumor, angiography and embolization were deemed unnecessary prior to resection. Stereotactic c-guided craniotomy was performed by Dr. Jonathan Brisman and the tumor was carefully excised from the surrounding brain. A gross total resection was achieved. He was discharged from the hospital to his home, neurologically intact with a slow improvement of his gait. Postoperative MRI (Fig. 3) showed no evidence of residual tumor.

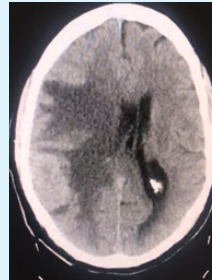


FIGURE 1
Preoperative CT scan
without contrast

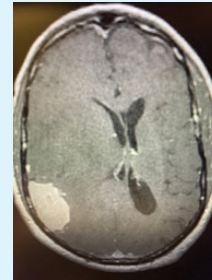


FIGURE 2
Preoperative MRI
with gadolinium

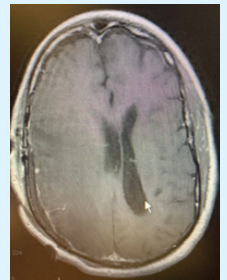


FIGURE 3
Postoperative MRI
shows no evidence
of residual tumor

Pathologic analysis revealed a meningothelial tumor consistent with a meningioma with atypical features (immunocytochemical positive staining for vimentin, EMA, and Ki67 at 23%), and the lesion was graded an Atypical Meningioma, WHO grade 2. Neuro-oncology consultation was obtained and a decision was made to monitor conservatively, with radiation therapy indicated for tumor recurrence only. The patient has since returned to normal neurologic function with no evidence of tumor recurrence.

Former NCAA Quarterback is Back to Normal After Elective Fusion



DANIEL BIRK M.D.
Spine Surgery



Scan to learn more about Dr. Birk

This is a 45-year-old IT professional who is married and has two kids. He's a former NCAA college football quarterback.

Since a car accident in 2015, he suffered chronic, intermittent episodes of back pain. He was in chiropractic treatment when he developed sudden, severe leg pain while jogging in California.

Dr. Birk performed a minimally invasive transforaminal lumbar interbody fusion (TLIF). After the procedure, no narcotic use was needed, and his back and leg pain were gone. The patient returned to normal functioning.

Preop x-rays showing pars defects or spondylolysis of the lumbar spine.



Postoperative MRI of the completed transforaminal lumbar interbody fusion (TLIF)



Elective Decompression and Lumbar Fusion Ends Years of Back and Leg Pain



YUSEF IMANI M.D.
Spine Surgery



Scan to learn more about Dr. Imani

RH is a 63-year-old man who has suffered with lower back pain and right leg pain for several years. His pain tended to increase with standing and ambulation. When his pain initially began, he got relief with over the counter medications (i.e. Advil, Tylenol). He then began to receive epidural steroid injections, which lasted for a while but the pain soon returned.

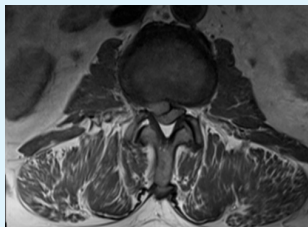
His MRI lumbar spine showed a herniated disc at L2/L3 and a grade 1 spondylolisthesis at L4/L5. Both of these findings were contributing to his back and leg pain.

Image 1 A shows central stenosis at L4/L5 level associated with grade 1 spondylolisthesis. B shows disc herniation at L2/L3

Image 1 A



Image B

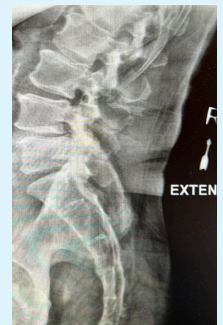


The grade 1 spondylolisthesis at L4/L5 requires both decompression at the L4/L5 level but also fusion because of the instability with motions. Here are three standing x-rays: one in the neutral position, one in flexion, and one in extension. Notice the movement in the vertebral bodies at L4 and L5. This is abnormal motion and it can contribute to back pain and increase stenosis in certain positions. Thus, it requires decompression and stabilization with fusions.

The herniated disc only requires decompression and removal of the herniated disc. Notice in the same dynamic x-rays, there's no abnormal motion at the L2/L3 level.

Image 2 shows the lumbar spine in motion. Notice the L4 and L5 level changes with flexion and extension. This is instability. Notice the L2 and L3 levels do not have that type of motion.

Image 2



Dr. Imani was able to decompress both the L2/L3 level (with disc herniation removal) and the L4/L5 level. Additionally, L4/L5 level was fused using titanium screw and an expandable interbody cage. This was performed with a very small incision. The patient has no more leg pain and back pain, and is doing very well.

Image 3 Post-op x-rays that show L4/L5 transforaminal lumbar interbody fusion (TLIF). There was also removal the L2/L3 disc herniation but no need for instrumentation.

Image 3



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