



Romanian Society
of Neurosurgery
since 1982

Abstract Book

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WELCOME TO RSN CONGRESS 2026

Dear colleagues and friends,

The **2026 Congress of the Romanian Society of Neurosurgery**, to be held in **Brasov, Romania, from September 17–19**, represents the central scientific event of the Romanian neurosurgical community and an important platform for international collaboration and knowledge exchange. The congress program will address the current challenges of modern neurosurgery, covering neuro-oncology, vascular neurosurgery, spinal surgery, functional neurosurgery, and neurotraumatology. The scientific sessions will explore minimally invasive techniques as well as the integration of artificial intelligence into surgical planning and execution.

In addition, the **pre-congress event, the Francophone Course of Neurosurgery**, will take place on **September 16, 2026**. This course promotes advanced training, international collaboration, and the exchange of best practices among Francophone neurosurgeons, while further strengthening Romania's role as a regional hub of neurosurgical expertise.

The 2026 Congress aligns with international standards and is harmonized with other major scientific initiatives in the field, including the activities of **IANA – the International Academy of Neurosurgical Anatomy**, an international reference organization in neurosurgical anatomy. The presence of IANA members at the Congress of the Romanian Society of Neurosurgery reflects a shared interest in promoting advanced knowledge of surgical anatomy and facilitating global academic and professional exchange. This scientific interaction provides the Romanian neurosurgical community with valuable opportunities to connect with current international trends and to support the maintenance of high standards of clinical practice and patient care.

The Romanian Society of Neurosurgery continues to support professional development, scientific innovation, and collaboration among academic centers, clinical departments, and research teams. The 2026 Congress offers an ideal framework for presenting the latest scientific results, sharing clinical experience, and discussing future directions in neurosurgery. We extend our gratitude to the Scientific Committee, invited speakers, institutional partners, and sponsors, whose involvement makes this event possible. Their professionalism and dedication ensure a rigorous, relevant, and valuable scientific program for the entire community.



We invite all participants to engage actively in the discussions. Together, we can strengthen the professional community, stimulate innovation, and advance the practice of neurosurgery, both in Romania and internationally.

Prof. Adrian BALASA, MD, PhD
Romanian Society of Neurosurgery President

A handwritten signature in blue ink, likely belonging to Prof. Adrian BALASA. The signature is stylized, with large, flowing loops and a clear, legible name.

Dear colleagues and friends,

As President of the Congress of the Romanian Society of Neurosurgery, I am deeply honored and delighted to invite you to the 51st RSN Congress and the 30th Francophone Course of Neurosurgery — taking place for the first time in Brașov. The RSN Congress remains the cornerstone and most prestigious event of the Society's educational program.

Nestled in the heart of Transylvania, Brașov is a city of rich history, vibrant culture and breathtaking mountain scenery — an inspiring setting for our scientific exchange and professional fellowship. Brașov's recorded history reaches back to the medieval period: the settlement is known from early documents under the Latin name "Corona" (first attestations in the 13th century) and developed as an important Transylvanian trading and craft center under the influence of Saxon settlers. Its well-preserved medieval core includes the Council Square, the imposing Black Church, a Gothic landmark largely built in the 14th–15th centuries, and the fortified walls and gates — among them the picturesque Catherine's Gate, a rare survival of the original city fortifications. Surrounded by the dramatic peaks of the Southern Carpathians, Brașov combines natural beauty with cultural heritage. Neurosurgery in Brașov has a proud 45-year tradition and today stands as a dynamic and continuously developing center of clinical care and education. This Congress celebrates both our national achievements and the local progress that has made Brașov a natural host for this milestone meeting.



I look forward to the stimulating presentations, constructive discussions, and the collaborative spirit that define our community. Together we will advance patient care, share innovation, and strengthen the future of neurosurgery in Romania. The RSN Congress is open to all neurosurgeons and neurosurgery related professionals, from all levels of training, that seek scientific and community development.

Cristian Kakucs, MD, PhD
President of the Congress

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ABSTRACT BOOK

51st Congress of the Romanian Society of Neurosurgery
Brașov, 17–19 September 2026

SPINE

CONCEPTUAL APPROACH TO SPINE SURGERY

Michael Spyrou, Spyrou A.,

Aim: Elaborate individual approach of treatment in each patient with spinal's compressive syndrome in order to understand better when it is necessary the surgery. If you will do that, its important to keep the maximum flexibility of the spine.

Material and methods: We analyzed the results of the treatment in 581 pts., where admitted in our private hospital due to the compression of the spinal cord or of the nerve roots. 394 pts. (68%), where male and 186 (32%) female. 33-84 y/old. The cause of the compression it was as follow: degenerative changes 400, epidural tumors 20, subdural tumors 5, epidural hematomas 3, epidural AVM 2, fractures 35, infections 10, disc hernia 79, synovial cyst 20, heredity 3, irregular growths of soft tissue 2, lipomatosis 1, Hirayama disease 1 pts.

In cervical area they had compression 168 pts, in dorsal 83 and in lumbar 330 pts. According to our classification 98 pts had I stage, 379 II stage and 104 III stage compressions. 405 pts had surgical treatment and 45 conservative.

Results: 3 pts were deteriorated neurologically post-operative. Recovery period 1-2 years (sign of ischemic problem during the surgery). 3 pts with post operative CSF leaking (Conservative treatment). 110 pts with implants fusion were re-operated in order to remove the implants (6 months-6 years p/op.). 8 patients had post operative infection (antibiotics for 3-6 months. 2 of them re-operated, removing the implants). 80 pts had 2nd surgery in adjusted segment. 290 pts declared satisfy from the treatment. 102 pts with conservative treatment declared satisfy.

Conclusions: The compression of the spinal cord or of the nerve roots is the consequence problem from different disease. The main cause of that is the degenerative change of the spine, especially in age 60-70 y/old. If the spinal cords and nerve roots compression are in stage II and III, the gold standard of treatment is the surgery. The age is not contra-indication for surgical treatment (without operation the patient will stay on the wheelchair until his death). The key of the success in spine surgery is including in the conceptual approach that means 5 R: Right patient, Right diagnose, Right treatment, Right surgery, Right follow up.

Institution: Blue Cross Medical Center

City: Pafos Country: Cyprus

INTRAMEDULLARY CERVICAL ASPERGILLOSIS IN AN IMMUNOCOMPETENT PATIENT: A RARE CAUSE OF PROGRESSIVE MYELOPATHY

Anastasia-Parascheva Sandu

Introduction: Central nervous system involvement in aspergillosis is uncommon and is typically encountered in immunocompromised patients. Intramedullary spinal aspergillosis is an exceptionally rare manifestation, with only a limited number of cases reported in the literature. Delayed diagnosis may lead to severe neurological deficits and poor functional outcomes. We present a rare case of cervical intramedullary aspergillosis occurring after pulmonary aspergillosis in a patient without evident immunodeficiency.

Case presentation: A 32-year-old woman with a recent diagnosis of pulmonary aspergillosis was admitted for progressive gait impairment evolving to spastic tetraparesis. Neurological examination revealed severe motor deficits, graded 2/5 in the lower limbs and 3/5 in the upper limbs according to the Medical Research Council scale. Cervical magnetic resonance imaging demonstrated an intramedullary lesion located at the C7–T1 level associated with spinal cord enlargement and significant compression. Due to the progressive neurological deterioration and uncertain preoperative diagnosis, surgical exploration and decompression were undertaken. Intraoperatively, the lesion exhibited the appearance of an intramedullary abscess. Histopathological examination subsequently confirmed *Aspergillus* infection.

Results: Surgical decompression achieved both diagnostic confirmation and relief of spinal cord compression. The patient received postoperative antifungal treatment and underwent neurological rehabilitation. Clinical and imaging follow-up demonstrated neurological stabilization with partial functional recovery. Correlation between the clinical presentation, radiological findings, intraoperative aspects, and histopathological examination established the definitive diagnosis of intramedullary aspergillosis.

Conclusion: Intramedullary aspergillosis should be considered in the differential diagnosis of progressive myelopathy, particularly in patients with a history of pulmonary fungal infection, even in the absence of significant immunosuppression. Early diagnosis combined with prompt surgical decompression and targeted antifungal therapy may improve neurological outcomes in this rare but potentially devastating condition.

Keywords: Intramedullary Aspergillosis, Cervical Spinal Cord, Progressive Myelopathy

UPPER CERVICAL DUMBBELL SCHWANNOMA: MICROSURGICAL RESECTION AT C1–C2

Nadja Emily Pop

Introduction: Upper cervical schwannomas are uncommon benign nerve sheath tumours that may produce severe spinal cord compression because of the limited space at the craniovertebral junction. Dumbbell-shaped lesions with both intra- and extradural components pose additional surgical challenges owing to their relationship with the vertebral artery and upper cervical nerve roots. We present a young patient successfully treated by microsurgical resection.

Material and methods: A 27-year-old woman with Sjögren syndrome presented with progressive tetraparesis, predominant right-sided weakness, cervical pain and sensory disturbances of the right upper limb. Neurological examination demonstrated bilateral Babinski and Hoffman positivity with grade 4+/5 tetraparesis predominantly affecting the right hemibody. Cervical MRI with contrast revealed a C1 intradural-extramedullary lesion with an extradural component extending between C1 and C2, producing marked spinal cord compression and radiological features suggestive of a dumbbell schwannoma. CT angiography demonstrated an 18×19×18 mm multilobulated lesion without vertebral artery invasion.

Results: The patient underwent microsurgical resection through a posterior approach consisting of C1 laminectomy and partial right C2 hemilaminectomy with intraoperative neuromonitoring. Both the intradural and extradural tumour components were completely excised, followed by duraplasty. Postoperative MRI confirmed complete decompression of the spinal cord without residual tumour. The patient experienced marked neurological improvement, with resolution of cervical pain and recovery of motor and sensory deficits. Histopathological examination confirmed a WHO Grade 1 schwannoma, demonstrating typical Antoni A and Antoni B areas, diffuse S100 positivity and a low proliferative index (Ki-67 <1%).

Conclusions: Dumbbell schwannomas of the upper cervical spine are rare lesions requiring meticulous preoperative planning because of their proximity to the spinal cord, vertebral artery and upper cervical nerve roots. Early microsurgical decompression allows complete resection and excellent neurological recovery while preserving spinal stability.

Keywords: Schwannoma, Dumbbell Tumour, Cervical Spine, C1–C2, Intradural Extramedullary Tumour, Microsurgery.

References:

Mark S. Greenberg. (2023). Greenberg's handbook of neurosurgery (10th ed.). Thieme Medical Publishers.

Seppälä, M. T., Haltia, M. J., Sankila, R. J., Jääskeläinen, J. E., & Heiskanen, O. (1995). Long-term outcome after removal of spinal schwannoma: a clinicopathological study of 187 cases. *Journal of neurosurgery*, 83(4), 621–626. <https://doi.org/10.3171/jns.1995.83.4.0621>

Conti, P., Pansini, G., Mouchaty, H., Capuano, C., & Conti, R. (2004). Spinal neurinomas: retrospective analysis and long-term outcome of 179 consecutively operated cases and review

of the literature. Surgical neurology, 61(1), 34–44. [https://doi.org/10.1016/s0090-3019\(03\)00537-8](https://doi.org/10.1016/s0090-3019(03)00537-8)

Wu, X., Li, D., Zhang, L., & Li, Y. (2025). A giant spinal schwannoma at the C1-C2 level: A case report. Medicine, 104(1), e41258. <https://doi.org/10.1097/MD.00000000000041258>

CONSTRUCT DURABILITY OF THE ULTRA-LIS TECHNIQUE IN 21 PATIENTS WITH CUMULATIVE COMORBIDITY BURDEN: A HIGH-RISK SUBGROUP ANALYSIS

Stefan A. Mindea

Introduction: Patients with multiple coexisting comorbidities — obesity, diabetes, smoking, and osteoporosis — represent a particularly challenging population in lumbar interbody surgery. Each comorbidity independently elevates risk for mechanical construct failure, wound complications, and subsidence; their combination compounds biomechanical and physiological vulnerability. While individual comorbidities have been studied in isolation, the performance of novel stabilization techniques in patients with cumulative high comorbidity burden has been less well characterized. ULTRA-LIS (Ultra-Lateral Tubular Retractor Access Lumbar Interbody Stabilization) is a composite cement-augmented technique whose three-element disc-space construct (autograft + trabecular metal cage + peripheral PMMA) and cement-augmented unilateral pedicle screw fixation may provide construct redundancy particularly valuable in high-risk patients. The objective was to evaluate construct durability and clinical outcomes of ULTRA-LIS stratified by cumulative comorbidity burden.

Methods: Subgroup analysis of 104 consecutive patients undergoing ULTRA-LIS between March 2023 and April 2026. Patients were stratified by cumulative comorbidity count: low-risk (zero comorbidities), intermediate-risk (one comorbidity), and high-risk (two or more comorbidities). Comorbidities included obesity (BMI ≥ 30), diabetes mellitus, current or recent smoking, and osteoporosis classified by L1 vertebral body Hounsfield Units 2 mm disc height loss on CT), and operative metrics stratified by comorbidity burden.

Results: Of 104 consecutive patients, 21 (20.2%) were classified as high-risk (≥ 2 comorbidities), 35 (33.7%) as intermediate-risk (1 comorbidity), and 48 (46.2%) as low-risk (0 comorbidities). Within the high-risk subgroup, 14 patients had 2 comorbidities, 6 had 3 comorbidities, and 1 patient carried all 4 comorbidities. The most common high-risk combinations were obesity plus smoking ($n=4$), obesity plus smoking plus diabetes ($n=4$), obesity plus osteoporosis ($n=4$), obesity plus diabetes ($n=3$), and smoking plus osteoporosis ($n=3$). Composite mechanical construct failure in the high-risk subgroup was 0/21 (0%), equivalent to the intermediate-risk and low-risk subgroups (both 0%). Mean preoperative ODI in the high-risk subgroup was 52.5, improving to 20.4 at 2 years ($N=20$) — a mean improvement of 32.8 points, comparable in magnitude to the overall cohort improvement of 35.4 points. Mean operative time was approximately 70 minutes, blood loss under 50 mL in every case, and length of stay 23 hours across all comorbidity strata. No cement-related complications were observed.

Conclusions: ULTRA-LIS maintained construct durability and produced substantial clinical improvement across all cumulative comorbidity strata, including the high-risk subgroup with two or more coexisting comorbidities ($n=21$, 20.2% of cohort). Zero mechanical failures occurred regardless of comorbidity burden, and ODI improvement in the high-risk subgroup (32.8 points) approached that of the overall cohort. The composite cement-augmented construct may provide biomechanical redundancy that buffers against the compound risk profile of patients with

multiple coexisting conditions. These findings support the use of composite cement-augmented stabilization in patients historically considered at elevated risk for mechanical and clinical failure

LUMBAR COMPOSITE STABILIZATION IN OSTEOPOROTIC PATIENTS: A CONSECUTIVE SERIES OF 24 HIGH-RISK CASES

Stefan A. Mindea

Introduction: Osteoporosis is associated with reduced pedicle screw purchase, instrumentation loosening, increased subsidence, and elevated mechanical construct failure rates in lumbar interbody stabilization. The elderly female patient with osteoporosis represents the population at greatest risk for these adverse outcomes. Polymethylmethacrylate (PMMA) augmentation of pedicle screws improves screw-bone interface strength in compromised bone, and intradiscal cement augmentation may reduce subsidence by extending the effective endplate load-bearing surface. The objective was to evaluate construct durability and clinical outcomes of a composite cement-augmented lumbar interbody stabilization technique in osteoporotic patients — the subgroup most biomechanically vulnerable to fixation failure. The technique combines far-lateral tubular access, cement-augmented unilateral pedicle screw fixation, and a composite three-element disc-space construct comprising ipsilateral facet autograft, central trabecular metal cage, and peripheral PMMA.

Methods: Subgroup analysis of 104 consecutive patients undergoing composite cement-augmented lumbar interbody stabilization at a single institution between March 2023 and April 2026. Bone quality was classified using L1 vertebral body Hounsfield Unit (HU) measurement on preoperative CT, available in 99.5% of patients. Per established thresholds, patients were stratified as osteoporotic (L1 HU 2 mm disc height loss on CT), operative metrics, and cement-related complications.

Results: Of 104 consecutive patients, 24 (23.1%) were classified as osteoporotic. The osteoporotic subgroup had a mean age of 74.0 years (range 62–83) and was 95.8% female (23/24), reflecting the characteristic demographics of the at-risk population. Overlapping comorbidities were common: 7 patients (29.2%) were also obese, 5 (20.8%) were also smokers, and 2 (8.3%) had coexisting diabetes. Composite mechanical construct failure in the osteoporotic subgroup was 0/24 (0%): zero revisions, zero screw loosening events, zero screw pullouts, zero cage migrations, zero progressive subsidence events. Mean ODI improved from 48.7 preoperatively to 15.1 at 2 years (N=23) — a mean improvement of 34.0 points, comparable to the overall cohort improvement of 35.4 points. Mean operative time was approximately 70 minutes; estimated blood loss was less than 50 mL in every case; mean length of stay was 23 hours. No cement extravasation, cement embolism, or thermal injury was observed in the osteoporotic subgroup.

Conclusions: Composite cement-augmented lumbar interbody stabilization maintained construct durability and produced robust clinical improvement in osteoporotic patients — an elderly, predominantly female subgroup historically at elevated risk for fixation failure and subsidence — with zero mechanical failures and ODI improvement of 34.0 points at two years. The combination of cement-augmented unilateral pedicle screw fixation with a composite three-element disc-space construct may provide a viable stabilization strategy in compromised bone, where conventional non-augmented constructs are most prone to mechanical failure. CT-based L1 Hounsfield Unit classification provides objective bone-quality stratification for future comparative analyses

A NOVEL COMPOSITE CEMENT-AUGMENTED LUMBAR INTERBODY STABILIZATION TECHNIQUE (ULTRA-LIS): OUTCOMES IN 104 CONSECUTIVE CASES

Stefan A. Mindea

Introduction: Lumbar interbody stabilization techniques have traditionally relied on conventional pedicle screw fixation and interbody cage placement, with subsidence remaining a recognized failure mode attributable to focal endplate loading. Standard transforaminal cages contact only 20–27% of the endplate surface, concentrating axial load on a limited footprint. Cement augmentation of pedicle screws improves screw-bone interface mechanics, and intradiscal cement augmentation may extend the effective load-bearing surface. ULTRA-LIS (Ultra-Lateral Tubular Retractor Access Lumbar Interbody Stabilization) is a novel composite stabilization technique combining far-lateral tubular access, cement-augmented unilateral pedicle screw fixation, and a composite three-element disc-space construct comprising ipsilateral facet autograft, central trabecular metal cage, and peripheral polymethylmethacrylate (PMMA). The objective was to report mechanical construct durability, clinical outcomes, and operational characteristics in a consecutive series.

Methods: Retrospective review of 104 consecutive patients undergoing ULTRA-LIS at a single institution between March 2023 and April 2026. Access was obtained via tubular corridor docked approximately 8 cm lateral to midline. After discectomy, ipsilateral facet autograft was packed into the contralateral disc space. A central trabecular metal cage (height 10–20 mm; width 12 mm; length 32 mm) was inserted in transforaminal position. PMMA was introduced to fill residual peripheral disc-space volume without contact with autograft. Unilateral pedicle screws were augmented with PMMA at the screw-bone interface. PMMA is used off-label for intradiscal augmentation. CT imaging was available in 99.5% of patients. The primary endpoint was composite mechanical construct failure (revision, screw loosening, screw pullout, rod fracture, cage migration, progressive subsidence requiring intervention, or alignment loss). Secondary endpoints included Oswestry Disability Index (ODI) at 1, 6, 12, and 24 months; subsidence defined as >2 mm disc height loss on CT; operative metrics (operative time, estimated blood loss, length of stay); and cement-related complications.

Results: One hundred four patients (mean age 60.0 ± 13.6 years, range 29–85; 56.7% female; 24.0% obese; 23.1% osteoporotic; 20.2% smokers; 14.4% diabetic) underwent ULTRA-LIS. Treated levels were L4/5 (55.8%), L5/S1 (26.9%), L3/4 (14.4%), and L2/3 (2.9%). Composite mechanical construct failure was 0/104 (0%): zero revisions, zero screw pullouts, zero cage migrations, zero progressive subsidence events. Mean ODI improved from 49.7 ± 10.0 preoperatively to 24.2 (1 month, N=104), 16.5 (6 months, N=103), 14.2 (1 year, N=98), and 14.0 (2 years, N=97) — a mean improvement of 35.4 points at the 2-year endpoint. The minimum clinically important difference (≥ 12.8 points) was achieved by 100% of patients with follow-up at 6 months, 1 year, and 2 years. Operational metrics demonstrated consistent efficiency: mean operative time 70 minutes, estimated blood loss less than 50 mL in every case, and mean length of stay 23 hours with routine discharge on a 23-hour observation pathway. No cement extravasation, cement embolism, or thermal injury was observed.

Conclusions: ULTRA-LIS demonstrated durable construct stability with zero mechanical failures and a 35.4-point mean ODI improvement at two years in 104 consecutive patients, with 100% of patients achieving MCID at 6 months and sustained thereafter. The composite three-element disc-space construct extends the effective endplate load-bearing surface, providing an anatomically grounded mechanism for subsidence resistance. The technique was associated with consistent operational efficiency — 70-minute mean operative time, blood loss under 50 mL in every case, and 23-hour length of stay — compatible with short-stay discharge protocols. Further prospective and comparative study is warranted

INTRAMEDULLARY HEMANGIOBLASTOMA: SURGICAL MANAGEMENT

Valentina-Simina Uțiu

Introduction: Intramedullary hemangioblastomas are benign vascular tumors of the central nervous system. Most commonly, they are located in the cerebellum. Spinal localization is rare, predominantly affecting the cervical region. Because of their high vascularization and association with syringomyelia, these lesions may lead to progressive neurological deficits.

Material and methods: A 29-year-old patient presented with pain in the right upper limb and diffuse paresthesia, started one year before the presentation. Neurological examination revealed distal paresis of the right upper limb. Cervical MRI showed a well-defined intramedullary tumor at the C2–C3 level, with homogeneous contrast enhancement and associated syringomyelia. Surgical treatment was performed, consisting of C2–C3 laminotomy to provide access to the spinal canal and adequate exposure of the spinal cord, followed by median durotomy for direct visualization of the lesion. Complete microsurgical resection of the tumor was achieved to decompress neural structures and prevent further neurological deterioration. The last step was a laminoplasty in order to restore spinal stability.

Results: The postoperative course was favorable, with no residual tumor and improvement of the neurological deficit.

Conclusions: Cervical intramedullary hemangioblastomas, although they are benign tumors, may be associated with progressive neurological deficitis, especially when they are accompanied by syringomyelia. Early diagnosis and microsurgical resection are essential for optimal neurological recovery and a reduced risk of recurrence. This case highlights the importance of appropriate microsurgical management in these highly vascularized tumors.

Keywords: intramedullary hemangioblastomas, syringomyelia, microsurgical resection

MANAGEMENT OF A3 FRACTURES: CAN WE REACH A CONSENSUS?

Marcel Ivanov

The management of AO Spine A3 thoracolumbar fractures continues to generate considerable debate, particularly in neurologically intact patients. Variations in fracture morphology, patient factors, and surgeon preference often result in different treatment strategies ranging from conservative management to surgical stabilisation. This presentation will review the current classification systems, available evidence, and the role of stability, kyphotic deformity, and patient-specific considerations in treatment selection.

Through an analysis of the literature and contemporary practice patterns, the lecture will examine whether a true consensus exists and identify areas where further research is needed.

THE CLOCK IS TICKING: SURGICAL TIMING IN SPINAL CORD INJURY

Marcel Ivanov

The optimal timing of surgery following acute spinal cord injury remains one of the most important and debated topics in spine trauma. Growing evidence suggests that early decompression may improve neurological recovery and functional outcomes, yet practical, logistical, and patient-related factors often influence clinical decision-making. This presentation will review the pathophysiological basis for early intervention, summarise the available clinical evidence and international guidelines, and discuss the challenges of implementing ultra-early surgery in everyday practice. The aim is to provide a pragmatic approach to balancing scientific evidence with real-world constraints.

AUGMENTED REALITY: EXPANDING THE HORIZONS OF SPINE SURGERY

Marcel Ivanov

Augmented reality (AR) is rapidly becoming an integral part of modern spine surgery, with most current applications focused on pedicle screw placement. However, the potential of AR extends far beyond navigation alone. This presentation will explore emerging indications, including tumour surgery, minimally invasive procedures, osteotomies, revision surgery, and intraoperative anatomical orientation.

The current evidence, technical limitations, and future developments will be reviewed, highlighting how AR may enhance surgical precision, improve workflow, and support education and training. The lecture will discuss whether AR is simply another navigation tool or a technology capable of fundamentally changing the way spine surgery is performed.

DIAGNOSTIC AND TREATMENT ALGORITHM IN PEDIATRIC SPINAL DYSRAPHISM

Vadim Scutaru

Introduction: Spinal dysraphism includes congenital neural tube defects associated with neurological, urological, and orthopedic complications. Early diagnosis and timely treatment are essential for preventing irreversible deficits.

Objective: To review current diagnostic and therapeutic principles in pediatric spinal dysraphism and propose an evidence-based management algorithm.

Materials and methods: A review of studies, guidelines, and neurosurgical publications from 2014–2025 was performed. Clinical, imaging, and therapeutic data were analyzed and integrated into a practical diagnostic and treatment framework.

Results: Early identification of cutaneous stigmata, neurological abnormalities, and bladder dysfunction remains fundamental for diagnosis. Spinal ultrasonography is the preferred screening tool in infants younger than 3 months, while MRI is the diagnostic gold standard. Prenatal ultrasonography and fetal MRI facilitate early detection and treatment planning. Open dysraphisms, particularly myelomeningocele, require prompt surgical repair to reduce infection risk and preserve neurological function. In occult dysraphisms, surgical intervention is indicated mainly in symptomatic patients with tethered cord syndrome or progressive neurological deterioration. Modern microsurgical techniques and intraoperative neurophysiological monitoring improve surgical precision and reduce neurological morbidity. Long-term multidisciplinary follow-up is necessary for monitoring functional, orthopedic, and urological outcomes.

Conclusions: A structured diagnostic and treatment algorithm enables early detection, accurate lesion characterization, and individualized management of pediatric spinal dysraphism. The combination of advanced imaging, microsurgical treatment, and multidisciplinary care improves outcomes and quality of life.

Keywords: spinal dysraphism, pediatric neurosurgery, tethered cord syndrome.

CONCEPTUAL APPROACH IN THE TREATMENT OF SPINAL PROBLEMS

Michael Spyrou, Spyrou A., Apostolou N.

Aim: Conceptual approach in treatment patients with different spinal problems in order to keep the maximum flexibility of the spine.

Material and methods: We analyzed the results of the treatment in 581 pts., where admitted in our private hospital due to the different problems of the spine. 395 pts. (68%) where male and 186 (32%) female. 33-84 y/old. Degenerative changes 400, epidural tumors 20, subdural tumors 5, epidural hematomas 3, epidural AVM 2, fractures 35, infections 10, disc hernia 86, synovial cyst 20, heredity 3, irregular growths of soft tissue 2, lipomatosis 1, Hirayama disease 1.

In cervical area had problems 168 pts, in dorsal 83 and in lumbar 330. 435 pts had surgical treatment and 146 conservative.

Results: 3 pts were deteriorated neurologically post-operative. 3 pts with postoperative CSF leaking. 110 pts with implants fusion were re-operated in order to remove the implants. 8 patients had postoperative infection. 80 pts had 2nd surgery in adjusted segment. 290 pts declared satisfy from the treatment. 146 pts with conservative treatment declared satisfy.

Conclusions: The main cause of the spine problems is the degenerative change of the spine, especially in age 60-70 y/old. The gold standard of treatment is the surgery. The age is not contra-indication for surgical treatment. Without operation the patient will stay on the wheelchair until his death. The key of the success in spine surgery includes in the conceptual approach, 5 R: Right patient, Right diagnose, Right treatment, Right surgery, Right follow up.

LUMBAR PERITONEAL SHUNTING IN DIFFERENT NEUROLOGICAL PROBLEMS

Michael Spyrou, Spyrou A.

Aim: Comprehensive examination of patients with various neurological symptoms associated with brain. Determination of the real role of CSF in the cranial cavity. Determination of diagnostic ability of lumbar puncture and LP shunting.

Material and methods: From March 2020 to April 2024, we performed lumbar puncture, as diagnostic method, in 145 patients, 91 male and 54 female, age 47-92, with various neurological symptoms and unsuccessful conservative treatment. We measured the intracranial pressure and removed 25-30 ml of CSF. Immediately after the procedure we asked the people stand and walk and give information about the previous symptoms. In 130 pts was placed LP Shunt with 1,5 pressure. We had follow up for all these patients in the post-operative period 2 weeks – 4 years.

Results: In all patients that undergone an operation we had improvement of their neurological symptoms. 7 pts had re-operated due to shunt block, without infection. 4 pts had infected wound, 2 of them re-operated and removed the shunt.

Conclusions: The measuring of the intracranial pressure and removing 20-30 ml of CSF with LP, is a simple method to know if it is necessary to proceed for shunting in patients with various neurological problems. The lumbar peritoneal shunt is better in patients with normal intracranial pressure and not hydrocephalus.

FROM CLINICAL SYMPTOMS TO SURGICAL DIAGNOSIS: A COMPLEX SPINAL CORD CASE

Valentina-Simina Uțiu

Aim: Intramedullary hemangioblastomas are benign vascular tumors of the central nervous system. Most commonly, they are located in the cerebellum. Spinal localization is rare, predominantly affecting the cervical region. Because of their high vascularization and association with syringomyelia, these lesions may lead to progressive neurological deficits.

Material and methods: A 29-year-old patient presented with pain in the right upper limb and diffuse paresthesia, started one year before the presentation. Neurological examination revealed distal paresis of the right upper limb. Cervical MRI showed a well-defined intramedullary tumor at the C2–C3 level, with homogeneous contrast enhancement and associated syringomyelia. Surgical treatment was performed, consisting of C2–C3 laminotomy to provide access to the spinal canal and adequate exposure of the spinal cord, followed by median durotomy for direct visualization of the lesion. Complete microsurgical resection of the tumor was achieved to decompress neural structures and prevent further neurological deterioration. The last step was a laminoplasty in order to restore spinal stability.

Results: The postoperative course was favorable, with no residual tumor and improvement of the neurological deficit.

Conclusions: Cervical intramedullary hemangioblastomas, although they are benign tumors, may be associated with progressive neurological deficitis, especially when they are accompanied by syringomyelia. Early diagnosis and microsurgical resection are essential for optimal neurological recovery and a reduced risk of recurrence. This case highlights the importance of appropriate microsurgical management in these highly vascularized tumors.

Keywords: intramedullary hemangioblastomas, syringomyelia, microsurgical resection

THE ROLE OF CSF IN DIFFERENT NEUROLOGICAL PROBLEMS

Michael Spyrou, Spyrou A.

Aim: Determination of the relationship between CSF and some neurological problems!

Material and methods: 145 patients, age 54-92 years, 59 female and 86 male, undergone of lumbar puncture due to various neurological problems, related to the brain. With LP we measured the intracranial pressure and removed 30 ml of CSF. Immediately after we asked the people to stand and walk. We asked them to give information about the previous symptoms and after the LP. 110 patients undergone an operation for Lumbar Peritoneal shunting.

Results: 125 patients had improvement immediately after the LP. From those that operated In 10 pts the shunt was blocked. 4 patients had infection and we removed the device. After treatment with antibiotics we placed again back the shunt. All the patients are satisfy with this kind of operation. The patients previously taking medication for Parkinson or Alzheimer', or MS either stopped taking, stopped increasing the doses, or reduced their doses.

Conclusions: All patients with neurological problems related to the brain, should have LP to measure the intracranial pressure and remove 20-30 ml of CSF. The way to check the ICP is LP. So the corresponding treatment for these problems is the LP Shunt. The programmable LP Shunt is the best device today to drainage the CSF, where isn't obstructed hydrocephalus. The disadvantage of the LP Shunt is the difficulties in regulate, due to soft tissue under the shunt.

TUMOR

BEYOND CLINICAL APPEARANCES: DIAGNOSTIC PITFALLS AND MICROSURGICAL MANAGEMENT OF AN ATYPICAL CEREBELLOPONTINE ANGLE LESION

Teleanu Dan-Constantin

Background: While vestibular schwannomas are the most common cerebellopontine angle (CPA) tumors, atypical presentations demand rigorous differential diagnosis. Misinterpreting a lesion's neural origin can lead to inadequate surgical planning and postoperative neurological deficits. This presentation aims to highlight the multidisciplinary management of a highly atypical CPA lesion, where diagnostic ambiguity dictated a flexible and precise surgical strategy.

Case presentation: A 31-year-old male presented following an episode of sudden left sensorineural hearing loss. Although his hearing had spontaneously improved, subsequent MRI monitoring revealed a progressively growing left CPA mass causing Koos Grade IV brainstem compression. The striking particularity of this case lies in the tumor's highly atypical morphology. Unlike standard vestibular schwannomas, this lesion exhibited a bilobed, hourglass configuration with an anomalous inferior extension into the petrous apex. It reached the posterior foramen lacerum and came into direct contact with the intrapetrous internal carotid artery. This unusual growth pattern created a severe diagnostic dilemma, making it radiologically impossible to distinguish between a vestibular schwannoma and an atypical facial nerve schwannoma.

Surgical intervention: Given the continuous tumor growth and the diagnostic uncertainty, surgery was indicated. A left retrosigmoid transmeatal approach was chosen, utilizing continuous neuromonitoring. Upon exposing the cerebellopontine angle, careful electrical mapping identified the facial nerve, which was displaced anteriorly and inferiorly. The surgical strategy focused on safe maximal resection to prioritize functional preservation. After central debulking, the surgeon meticulously dissected the epineural plane. To avoid mechanical trauma to the nerve, a thin layer of the tumor capsule was intentionally left in situ at the porus acusticus and near the posterior foramen lacerum. At the end of the procedure, the anatomically intact facial nerve trunk showed a robust response to 0.03mA stimulation.

Conclusion: Above all, this case underscores that the patient's functional outcome and quality of life must take precedence over achieving a total macroscopic resection. Furthermore, it highlights the highly atypical nature of this specific lesion, demonstrating that the correct management of such complex cases relies on flexible surgical planning and real-time neuromonitoring to safely navigate diagnostic uncertainties.

RETROSIGMOID APPROACH FOR PETROCLIVAL MENINGIOMAS: A SINGLE-SURGEON EXPERIENCE

Matei Baltac

Introduction: Petroclival meningiomas represent one of the most challenging skull base tumors due to their deep location and proximity to critical neurovascular structures, including the brainstem and cranial nerves. Multiple surgical corridors have been described for their management, with ongoing debate regarding the optimal approach that balances tumor resection with neurological preservation. The retrosigmoid approach is traditionally considered less extensive than combined petrosal or anterior petrosectomy techniques, yet it may provide sufficient exposure in selected cases. This study presents a single-surgeon experience with petroclival meningiomas operated predominantly through a retrosigmoid approach, emphasizing the feasibility and outcomes of this strategy.

Materials and methods: A retrospective analysis was performed on patients with petroclival meningiomas operated in our clinic between 2000 and February 2026. The cohort included 66 consecutive cases treated by a single neurosurgeon. Clinical presentation, demographic data, surgical approach, extent of resection, and histopathological subtype were reviewed. Particular attention was given to presenting symptoms and the feasibility of tumor removal using a retrosigmoid approach. The extent of resection was graded according to the Simpson classification.

Results: A clear female predominance was observed, with women representing 77.3% of patients. The most common clinical presentation was a symptom triad consisting of headache, gait disturbance, and visual deficits, including nystagmus and diplopia. The retrosigmoid approach was used as the primary surgical corridor in the majority of cases. Simpson grade II resection was the most frequently achieved extent of tumor removal. Histopathological examination showed that the most common subtype was meningothelial meningioma (54.8%), followed by transitional (14.3%) and fibroblastic (9.5%) variants, with other subtypes occurring less frequently.

Conclusions: Our single-surgeon experience demonstrates that the retrosigmoid approach represents a feasible and effective surgical corridor for selected petroclival meningiomas. It allows satisfactory tumor resection while avoiding more extensive skull base approaches. These findings support the retrosigmoid approach as a valuable strategy in the surgical management of petroclival meningiomas.

GAMMA KNIFE RADIOSURGERY FOR UVEAL MELANOMA

Fery Stoica

Radiosurgery consists of precisely delivered high single dose of focused radiation in order to create a desired radiobiologic response within the target with minimal effects to the surrounding healthy tissues.

Uveal Melanomas are the most common primary intraocular malignancy in adults (~82% of ocular cancers) with a significant metastatic risk. Stereotactic Gamma Knife Radiosurgery (GKRS) is performed under eye immobilization (muscle sutures or retrobulbar anaesthesia) and stereotactic frame placement. Single-session outpatient treatment is delivering 25–35 Gy on the 55–65% isodose using 3D treatment planning provided by Leksell Gamma Plan with sub-millimetre precision.

GKRS is considered the “standard-of-care” for intraocular lesions: Uveal Melanomas confirmed histologically or by imaging, juxtapapillary tumours inaccessible for plaque brachytherapy, single functional eye when eye preservation is essential and brachytherapy or enucleation are unacceptable, medium-to-large tumours unsuitable for brachytherapy, high anaesthetic risk for surgical interventions, local recurrence after another form of local radiotherapy or patient preference for non-surgical treatment.

The authors present their experience over the last 22 years in using a Leksell Gamma-Knife equipment in the treatment of more than 500 Uveal Melanomas, representing one eighth of all patients treated worldwide. Local control is achieved in 85–95% of patients with tumour regression in 82–86% of cases. Survival after GKRS is equal to enucleation: 94% at 3-year and 74% at 5-year interval. Vision preservation ($> 1/60$) is 69.6% at 1 year and blindness rates after 2 years were dramatically reduced by dose de-escalation at < 35 Gy. Secondary enucleation rate (treatment failure) is encountered only in 5–6% of cases. By combining GKRS with immunotherapy, an abscopal effect can be obtained that can prolong the Overall Survival (OS) of patients with metastatic disease in Uveal Melanoma by up to 27.6 months, compared to only 7.6 months in cases with monotherapy or 12.7 months in those with IpiNivo.

In conclusion, Stereotactic Gamma Knife Radiosurgery is effective as primary treatment for Uveal Melanomas, with control rates comparable or superior to other globe-sparing therapies.

RECURRENT SYMPTOMS IN A PETROCLIVAL MENINGIOMA AFTER GAMMA KNIFE RADIOSURGERY – A CASE REPORT

Andreea-Maria Incicău, Matei Ioan Baltac, Ioan Ștefan Florian

Introduction: Meningiomas are common neoplasms of the central nervous system that arise from arachnoidal cells. Gamma Knife is a noninvasive stereotactic radiosurgery technique that delivers a single, high dose, highly focused gamma ray treatment to an intracranial target while sparing surrounding tissue.

Material and methods: A 56-year-old woman presented with left perimaxillary paresthesia and pain beginning five years earlier. Contrast-enhanced MRI revealed a left petroclival tumor. She had previously undergone Gamma Knife radiosurgery in 2021, with complete remission of pain, but symptoms recurred one year ago without response to conservative therapy. Follow-up MRI showed slight progression of the tumor. In March 2026, she underwent a left retrosigmoid approach for complete tumor resection with coagulation of its dural attachment. Histopathological examination confirmed a meningothelial meningioma, WHO grade 1. Postoperative CT showed a clear resection cavity without ischemia or hemorrhage. She remained neurologically stable, with mild balance disturbance and left convergent strabismus. Eight days later, she was discharged with recommendations to protect the surgical wound from sun exposure, maintain daily wound antisepsis, use mild analgesics as needed, and attend a contrast-enhanced MRI follow-up at three months.

Results: Petroclival meningiomas arise in a densely packed neurovascular region where complete resection is risky. Gamma Knife offers a noninvasive method to slow progression, but the patient's recurrent symptoms indicated insufficient control, ultimately necessitating surgical intervention. The retrosigmoid approach was selected because it provides increased exposure of the upper and lower petroclival surfaces, unlike presigmoid routes limited inferiorly by the sigmoid sinus. It also enables early cranial nerve visualization and carries lower risks of facial palsy and hearing impairment. The sitting position improves venous and cerebrospinal fluid drainage through gravity. Although associated with venous air embolism, this complication can be prevented by using a central venous catheter.

Conclusions: Gamma Knife alone can be ineffective in petroclival meningiomas. When surgery becomes necessary, a retrosigmoid approach combined with the sitting position provides an improved operative control. Microsurgical technique can overcome the region's complexity and make complete excision feasible.

Keywords: petroclival meningioma, gamma knife, retrosigmoid approach, sitting position

MULTIMODAL INTRAOPERATIVE MONITORING OF THE VISUAL PATHWAYS IN INTRACRANIAL TUMOR SURGERY

Claudiu Matei

Preservation of visual function has become an essential goal of modern intracranial tumor surgery. Recent advances in intraoperative neurophysiological monitoring (IONM) now allow assessment of the visual pathways at multiple anatomical levels, combining visual evoked potentials (VEPs), cranial nerve monitoring during endoscopic skull base surgery, and direct electrical stimulation of the optic radiations during awake craniotomy. Together, these techniques enable maximal safe resection while minimizing postoperative visual morbidity.

Methods: We present our multimodal strategy for intraoperative visual pathway monitoring, including:

- continuous VEP monitoring during endoscopic endonasal surgery for pituitary and parasellar lesions;
- electrophysiological monitoring of cranial nerves II, III, IV and VI when indicated during skull base procedures;
- awake cortical and subcortical mapping of the optic radiations using direct electrical stimulation in patients with occipital and temporo-occipital gliomas adjacent to the visual pathways.

Representative clinical cases illustrate the practical application of each technique.

Results: Continuous VEP monitoring provided real-time assessment of anterior visual pathway integrity during pituitary surgery, allowing immediate recognition of reversible changes following optic apparatus manipulation.

Awake mapping of the optic radiations enabled identification of functional white matter boundaries during tumor resection, facilitating maximal safe removal while preserving visual fields.

The integration of neurophysiology with neuronavigation and preoperative tractography improved intraoperative decision-making and increased surgical confidence in lesions located near eloquent visual structures.

Conclusions: Visual pathway monitoring has evolved beyond isolated VEP recording into a comprehensive multimodal strategy encompassing the entire visual system. Tailoring intraoperative monitoring to tumor location enables safer surgery, better functional preservation, and supports the concept of personalized neuro-oncological treatment.

MULTIMODAL FUNCTIONAL BRAIN MAPPING IN NEUROSURGERY: CORTIQ™ HIGH-GAMMA MAPPING AND CORTICO-CORTICAL EVOKED POTENTIALS

Marian-Silviu Poboroniuc

Introduction: Maximal safe resection requires identification of eloquent cortical sites and their connections. Direct electrical stimulation (DES) remains the reference standard, but is time-consuming, may provoke seizures, and requires patient cooperation. High-gamma mapping and cortico-cortical evoked potentials (CCEPs) offer complementary information.

Material and methods: Several clinical studies of CortiQ™ (gtec, Austria) and related ECoG mapping in epilepsy and tumor surgery, focusing on high-gamma activity (60–170 Hz), comparison with DES, passive language paradigms, and CCEPs, have been reviewed.

Results: CortiQ™ displays task-related high-gamma changes on the electrode layout within minutes. Published series show concordance with DES and fMRI for motor, sensory, and language localization; awake-craniotomy studies reported about 90% sensitivity and specificity for language mapping. High-gamma mapping can prioritize DES sites, reveal naming dynamics, and map receptive language by passive listening. Feasibility under general anesthesia has also been reported. Resection of naming-related high-gamma sites has been associated with postoperative cognitive or language decline. However, activation identifies participating cortex rather than proving indispensability and is limited by electrode coverage, artifacts, pathology, and anesthetic depth. CCEPs complement local activation maps by stimulating one site and recording distant responses, delineating effective language-network connectivity and helping preserve cortical and subcortical pathways.

Conclusions: Combining CortiQ™ high-gamma mapping, focused DES, and CCEPs may provide faster, more comprehensive mapping of cortical nodes and connections. These methods should complement, not replace, stimulation mapping while prospective studies define value.

Keywords: CortiQ™; ECoG; high-gamma; CCEP; functional mapping.

TRANSLAMINA TERMINALIS RESECTION OF A GIANT SELLAR-SUPRASellar CRANIOPHARYNGIOMA WITH THIRD VENTRICLE EXTENSION: A CASE REPORT

Nadja Emily Pop

Introduction: Craniopharyngiomas are rare benign epithelial tumours arising in the sellar and suprasellar region and account for 2–5% of all intracranial tumours. Surgical treatment remains challenging because of their close relationship with the optic apparatus, hypothalamus, pituitary stalk and major vascular structures. We present the surgical management of a giant adamantinomatous craniopharyngioma extending into the third ventricle using a translamina terminalis approach.

Material and methods: A 45-year-old male presented with a three-month history of headaches, memory disturbances and bitemporal hemianopsia. MRI demonstrated a mixed solid-cystic sellar-suprasellar lesion measuring 44×39×40 mm with extension into the third ventricle and heterogeneous contrast enhancement. Surgery was performed using neuronavigation, a bifrontal craniotomy and an interhemispheric translamina terminalis retrochiasmatic approach. Internal decompression was achieved with Cavitron Ultrasonic Surgical Aspirator, followed by partial tuberculum sellae resection and decompression of the optic nerves and optic chiasm.

Results: Near-total resection was achieved, however, a small residual component adherent to deep neurovascular structures within the interpeduncular region was intentionally preserved to minimize neurological morbidity. The residual tumour was subsequently managed with planned adjuvant fractionated radiotherapy. Histopathological examination confirmed an adamantinomatous craniopharyngioma (WHO grade 1). Postoperatively, the patient developed diabetes insipidus, transient hypernatremia and hypokalaemia, hypopituitarism, urinary retention and a frontal-nasal chemical burn, all of which were successfully managed conservatively. At discharge, the patient was neurologically stable, fully conscious, mobilizing independently and without motor deficits.

Conclusions: Giant craniopharyngiomas with third ventricular extension remain surgically demanding lesions because of their close relationship with critical neurovascular and hypothalamic structures. The translamina terminalis approach offers excellent exposure of the third ventricle and retrochiasmatic region while allowing effective decompression of the optic apparatus. Preservation of neurological function should be prioritized over aggressive gross-total resection when critical structures are involved.

Keywords: Craniopharyngioma, translamina terminalis, skull base surgery, third ventricle, neuronavigation, optochiasmatic syndrome.

References:

Alboqami, M. N., Khalid S Albaiahy, A., Bukhari, B. H., Alkhaibary, A., Alharbi, A., Khairy, S., Alassiri, A. H., AlSufiani, F., Alkhani, A., & Aloraidi, A. (2024). Craniopharyngioma: A comprehensive review of the clinical presentation, radiological findings, management, and future Perspective. *Heliyon*, 10(11), e32112. <https://doi.org/10.1016/j.heliyon.2024.e32112>

Mark S. Greenberg. (2023). Greenberg's handbook of neurosurgery (10th ed.). Thieme Medical Publishers.

Prieto, R., Rosdolsky, M., Hofecker, V., Barrios, L., & Pascual, J. M. (2020). Craniopharyngioma treatment: an updated summary of important clinicopathological concepts. Expert review of endocrinology & metabolism, 15(4), 261–282. <https://doi.org/10.1080/17446651.2020.1770081>

LINKING MOLECULAR BEHAVIOR WITH NEUROSURGICAL PHENOTYPES IN PITNETS WITH A FOCUS ON PREDICTORS OF GROSS TOTAL RESECTION

Ligia Gabriela Tataranu

Introduction: Despite having a benign histology, pituitary neuroendocrine tumors (PitNETs), formerly known as pituitary adenomas, are invasive into the neighbouring anatomical structures in approximately 35% of cases, exhibiting an aggressive behavior that can be refractory to all of the available therapeutic options. In the last decades, the focus regarding this pathology shifted to the biomolecular aspects, in order to decipher predictable surgical strategies, complications, treatments, and to anticipate outcomes.

Material and methods: A two-layer analysis was performed, combining an international public PitNET molecular dataset with a retrospective institutional surgical cohort. Molecular/genomic instability patterns were assessed in the public dataset, while predictors of gross total resection (GTR) were evaluated in our cohort, within an integrated clinico-biological framework.

Results: Low genomic instability was observed, with a median mutation count of 2, a median fraction genome altered (FGA) of 0.038, and a median microsatellite instability (MSI) of 0.01. Individual genomic markers were not significantly associated with survival, but their integration into a genomic instability score suggested distinct biological patterns. In our institutional cohort, heterogeneous biological profiles, with variable lineage expression and proliferative activity across PitNET subgroups, were observed. Furthermore, failure to achieve GTR was mainly interpreted in relation to tumor size, cavernous sinus invasion, suprasellar extension, and recurrent disease.

Conclusions: Together, these findings support an exploratory framework linking tumor biology with neurosurgical resectability. Gross total resection in PitNETs appears to be mainly limited by anatomical and radiological factors, while molecular heterogeneity may provide an additional layer for understanding aggressive tumor behavior. This integrated approach may contribute to future personalized surgical planning and postoperative risk stratification.

Keywords: pituitary neuroendocrine tumors; biomolecular; genomic instability; fraction genome altered; microsatellite instability.

References:

1. Asa SL, Mete O, Perry A, and Osamura RY (2022), Overview of the 2022 WHO Classification of Pituitary Tumors. *Endocr Pathol* 33:6-26. doi: 10.1007/s12022-022-09703-7;
2. (MSK) MSKCC (2024) Pituitary Adenoma (MSK, *Acta Neuropathologica* 2024). cBioPortal for Cancer Genomics;
3. Jentus MM, Bakker L, Verstegen M, Pelsma I, van Wezel T, Ruano D, Kapiteijn E, Crobach S, Biermasz N, and Morreau H (2025) Chromosomal alteration patterns in PitNETs: massive losses in aggressive tumors. *Endocr Relat Cancer* 32. doi: 10.1530/erc-24-0070;

4. Lasolle H, Elsensohn MH, Wierinckx A, Alix E, Bonnefille C, Vasiljevic A, Cortet C, Decoudier B, Sturm N, Gaillard S, Ferrière A, Roy P, Jouanneau E, Bertolino P, Bardel C, Sanlaville D, and Raverot G (2020) Chromosomal instability in the prediction of pituitary neuroendocrine tumors prognosis. *Acta Neuropathol Commun* 8:190. doi: 10.1186/s40478-020-01067-5;
5. Lin AL, Rudneva VA, Richards AL, Zhang Y, Woo HJ, Cohen M, Tisnado J, Majd N, Wardlaw SL, Page-Wilson G, Sengupta S, Chow F, Goichot B, Ozer BH, Dietrich J, Nachtigall L, Desai A, Alano T, Ogilvie S, Solit DB, Bale TA, Rosenblum M, Donoghue MTA, Geer EB, and Tabar V (2024). Genome-wide loss of heterozygosity predicts aggressive, treatment-refractory behavior in pituitary neuroendocrine tumors. *Acta Neuropathol* 147:85. doi: 10.1007/s00401-024-02736-8;
6. Neou M, Villa C, Armignacco R, Jouinot A, Raffin-Sanson M-L, Septier A, Letourneur F, Diry S, Diedisheim M, Izac B, Gaspar C, Perlemoine K, Verjus V, Bernier M, Boulin A, Emile J-F, Bertagna X, Jaffrezic F, Laloe D, Baussart B, Bertherat J, Gaillard S, and Assié G (2020). Pangenomic Classification of Pituitary Neuroendocrine Tumors. *Cancer Cell* 37:123-134.e5. doi: 10.1016/j.ccell.2019.11.002.

Oral presentation

BREAST CANCER BRAIN METASTASES: BRIDGING NEUROSURGERY, PRECISION MEDICINE, AND EMERGING SYSTEMIC THERAPIES – A 5-YEAR EXPERIENCE

Ligia Gabriela Tataranu

Introduction: Breast cancer brain metastases (BCBM) represent a major challenge in neuro-oncology, being significantly related to neurological morbidity and having a major impact on the quality of life. Advances in molecular characterization and systemic therapies for breast cancer have lately improved survival, resulting in an increasing number of patients requiring treatment for intracranial disease. Contemporary management of BCBM relies on a multidisciplinary approach that combines neurosurgery, stereotactic radiosurgery, radiation therapy, and emerging systemic treatments tailored to tumor biology and molecular characteristics.

Material and methods: We retrospectively analysed 104 patients diagnosed with breast cancer brain metastases and treated between January 2021 and December 2025 in the Third Neurosurgical Department of “Bagdasar-Arseni” Emergency Hospital, Bucharest, Romania. Clinical, radiological, and treatment-related data were reviewed, including lesion distribution, intracranial disease, surgical and radiosurgical management, radiological response, and treatment-related complications. Follow-up imaging and clinical assessments were used to evaluate local disease control and treatment outcomes.

Results: Patients presented with a broad spectrum of intracranial lesions, ranging from a solitary mass amenable to surgical resection to multiple metastases requiring multimodal treatment. Surgical intervention played a critical role in selected patients by providing rapid relief of mass effect, obtaining histopathological confirmation, improving neurological status, and facilitating subsequent oncological treatment. Stereotactic radiosurgery was frequently integrated into treatment plans to achieve local control while minimizing exposure of healthy brain tissue. Favorable radiological responses were observed in the majority of treated lesions, with significant tumor volume reduction and durable intracranial control during follow-up. Reinterventions were occasionally required due to disease progression or the emergence of new metastatic lesions. Treatment was generally well tolerated, with a low rate of significant adverse events.

Conclusions: Breast cancer brain metastases require individualized multidisciplinary management that integrates neurosurgery, stereotactic radiosurgery, and modern systemic therapies. Neurosurgical treatment remains a cornerstone of care in selected patients, offering symptom relief, tissue diagnosis, and effective local disease control. In the era of precision oncology, close collaboration between neurosurgeons, radiation oncologists, and medical oncologists is essential to optimize survival, preserve neurological function, and maintain quality of life.

Keywords: breast cancer, brain metastases, neurosurgery, stereotactic radiosurgery, systemic therapies.

SURGICAL AND ANATOMICAL PARTICULARITIES OF MIDDLE CEREBRAL ARTERY BIFURCATION ANEURYSMS: A CASE SERIES

Corneliu Toader

Introduction: Anterior fossa meningiomas represent a complex group of skull base tumors that may arise from the olfactory groove, planum sphenoidale, tuberculum sellae, or anterior clinoid region, each location presenting specific surgical challenges and potential risks. Their surgical management needs to take into consideration the anatomy of the lesion, size, vascular supply, and relationship with adjacent neurovascular structures.

Methods: We retrospectively reviewed a case series of patients diagnosed with anterior fossa meningiomas. The clinical presentation, tumor imaging and surgical challenges encountered during surgery as well as postoperative imaging were analyzed.

Results: The slow growth of anterior fossa meningioma makes them rarely present with increased intracranial pressure and more often with signs and symptoms caused by compression on different central or peripheral nervous structures. A correctly executed resection is expected to reestablish the normal function of the affected areas. Particular attention should be given to the relationship of these tumors with the frontal lobes, optic nerves and chiasm, anterior cerebral arteries, internal carotid arteries, and perforating vessels. Surgical difficulties may include limited exposure, tumor adherence to critical neurovascular structures up to vascular or neural structures encasement, hyperostosis or skull base invasion, brain edema and the need for careful frontal lobe retraction, especially in dominant frontal lobe surgery. Also, usually underestimated, are the difficulties of closing after the dura and bone resection. Feared complications include cerebrospinal fluid leakage, postoperative hemorrhage, ischemic injury, visual deterioration, dominant frontal lobe injury and endocrine dysfunction in tumors near the sellar region.

Conclusions: Understanding the anatomical particularities of anterior fossa meningiomas is essential for choosing the optimal surgical approach, achieving maximal safe resection, and minimizing procedure-related morbidity. Given the benign character of this type of lesion, normal neurological status is expected postoperatively.

Keywords: anterior cranial fossa, meningioma, skull base, total resection, surgical technique, anatomical characteristics.

SURGICAL MANAGEMENT OF GIANT ANTERIOR FOSSA MENINGIOMAS

Toma Marius Papacocea

Giant anterior fossa meningiomas represent a unique neurosurgical challenge due to their insidious growth, large size at diagnosis, and proximity to critical neurovascular structures. These tumors often remain asymptomatic until they reach considerable dimensions, leading to delayed presentation with cognitive decline, visual impairment, or personality changes. The surgical management of these lesions requires careful preoperative planning, meticulous microsurgical technique, and a tailored approach based on tumor extension, vascular involvement, and patient-specific factors.

This presentation aims to review current strategies in the surgical treatment of giant anterior fossa meningiomas, emphasizing operative approaches, complication avoidance, and outcome optimization. Various surgical corridors, including bifrontal, unilateral subfrontal, and pterional approaches, will be discussed, highlighting their respective indications, advantages, and limitations. Particular attention will be given to techniques for minimizing frontal lobe retraction and achieving safe tumor devascularization. Postoperative management and long-term outcomes, including recurrence rates and functional recovery, will also be addressed.

Through a synthesis of current literature and illustrative clinical cases, this presentation seeks to provide a comprehensive overview of best practices in managing these complex lesions. The ultimate goal is to enhance surgical safety, maximize extent of resection, and improve patient quality of life.

CAVERNOUS SINUS TUMORS: SURGICAL CONSIDERATIONS

Ciobotaru Georgian

Introduction: In Romania, cavernous sinus tumors are generally regarded as highly challenging surgical lesions and are therefore commonly referred for radiotherapy as a first instance line of treatment. However, optimal management should be multimodal, with surgery retaining a well-defined role and representing the only viable option in selected circumstances, such as post-radiotherapy progression, symptomatic compressive lesions, tumors associated with cerebral edema and secondary epilepsy, non-irradiable lesions, and other complex clinical scenarios.

Objective: To advocate for the necessity of surgical assessment in Romanian centers with expertise in cavernous sinus surgery, and for the systematic consideration of surgery prior to adjuvant treatment modalities.

Materials and methods:

At the Central Military Emergency University Hospital in Bucharest, approximately 5 to 10 such procedures are performed annually, the majority involving cavernous sinus meningiomas. The treated cases include interventions whose main objectives were cavernous sinus decompression, relief of trigeminal neuralgia, control of secondary epilepsy, tumor removal, and other lesion-specific surgical goals.

Although tumor resections were associated with neurological deficits involving cranial nerves, these deficits were generally transient. While the current case volume remains limited, increasing awareness within the neurosurgical community regarding the existence of a reference center for these tumors may improve referral pathways and promote a multidisciplinary approach to these complex cases.

Discussion: Cavernous sinus tumors are complex lesions whose surgical treatment carries a high risk of complications. Nevertheless, when performed in experienced surgical centers and using contemporary approaches, open surgical procedures may represent optimal therapeutic solutions for selected patients, within a broader multimodal treatment strategy.

Conclusions: In selected cases of cavernous sinus tumors, therapeutic decision-making should not be reduced to routine primary irradiation. Patients should be referred to centers with expertise in cavernous sinus surgery, where a multidisciplinary strategy can be adopted, while maintaining surgery as a central component of treatment.

PENETRATING CRANIOCEREBRAL INJURY FROM A RUBBER BULLET WITH TRANSTENTORIAL HERNIATION AND EARLY RETROGRADE MIGRATION: A CASE REPORT

Adrian Ichim

Introduction: The medical literature contains only one reported case of penetrating craniocerebral gunshot injury caused by a rubber bullet; all other reports involve plastic-coated metal bullets. Migration of a retained intracranial projectile is attributed to gravity or to tract liquefaction and resorption over days to weeks. We describe retrograde migration of the bullet identified approximately 2 hours after injury and 1 hour after the initial CT delineated the wound.

Materials and methods:

Retrospective single-case review of clinical, imaging, operative and forensic records of a 37-year-old man shot at close range in the left pterional region with a 10-mm expandable rubber bullet fired from a pistol with a muzzle energy of ≈ 50 J.

Results: At admission GCS 8–9, aphasia, right hemiparesis. CT revealed a ~ 13 mm non-metallic bullet in the brain parenchyma ~ 20 mm from the scalp, with a depressed comminuted fracture and a 17.4-mm calvarial defect, larger than the bullet diameter, extruded cerebral tissue, hemorrhagic collection, mesencephalic compression and transtentorial herniation. Surgery began with the patient in right lateral decubitus; the bullet was found beneath the temporalis muscle, migrated outside the skull, and removed before craniotomy. Craniotomy, esquillectomy and temporalis-fascia duraplasty followed. Discharge day 16, GCS 15.

Conclusions: Neither gravity nor tract liquefaction accounts for this displacement. We hypothesize that the bullet, arrested at a calvarial defect wider than itself, was carried out by extruding cerebral tissue under raised intracranial pressure; repositioning may have contributed. Projectile position at operation should not be assumed from admission CT.

Keywords: Penetrating craniocerebral gunshot injury; rubber bullet; projectile migration.

References: Amelot A, et al. Am J Emerg Med. 2013;31:636.e5–7.

Darwazeh R, et al. Br J Surg. 2023;110:403–5.

INTEGRATING EXTENDED REALITY (XR) INTO NEUROSURGICAL PRACTICE

George Petrescu

Introduction: Extended reality (XR), covering virtual (VR), augmented (AR) and mixed reality (MR), transforms two-dimensional imaging into immersive, patient-specific three-dimensional anatomy. In neurosurgery, where millimetric relationships between lesion, vessels and white matter tracts dictate feasibility and functional outcome, XR has progressively evolved from an educational adjunct into a tool used throughout the surgical workflow.

Materials and methods:

Patients undergoing cranial and spinal procedures at Bagdasar-Arseni Clinical Emergency Hospital for tumoral, vascular, skull base and degenerative pathology were included. Volumetric MRI, CT and CT/MR angiography datasets, complemented by diffusion tensor tractography and functional mapping, were segmented and reconstructed as patient-specific models. The following applications were assessed: immersive VR preoperative planning and virtual craniotomy simulation; AR overlay through head-mounted displays or microscope image injection; MR-assisted external biopsy; VR-based patient counselling and informed consent.

Results: Patient-specific reconstructions were successfully generated for the included cranial and spinal cases, covering tumoral, vascular, skull base and degenerative pathology. Immersive VR review and virtual craniotomy simulation allowed the operative corridor and the relationships between lesion, vessels and eloquent structures to be assessed preoperatively, and were applied consistently across the different pathological entities. Augmented reality overlay, delivered through head-mounted displays or microscope image injection, was especially useful for eloquent area lesions. VR-based counselling was applied during the informed consent process, offering patients and their families a visual representation of their own pathology and of the proposed intervention. Overall, the different XR applications proved feasible to integrate into the existing institutional workflow, with a limited amount of additional preparation time and without interference with standard surgical steps.

Conclusions: Extended reality can be integrated into the current neurosurgical workflow without disrupting standard operative steps, providing a coherent framework in which the same patient-specific reconstruction serves preoperative planning, intraoperative guidance and patient communication. Its contribution appears most consistent in the preoperative assessment of complex operative corridors and in lesions involving eloquent areas, where an immersive understanding of anatomical relationships complements conventional imaging and navigation.

Keywords: extended reality, tumor resection, vascular neurosurgery, VR, AR

THE PREDICTIVE AND PROGNOSTIC VALUE OF MGMT PROMOTER METHYLATION IN GLIOBLASTOMA: TAILORING THERAPY AND OPTIMIZING SURVIVAL OUTCOME

Daniel Mihai Teleanu

Glioblastoma remains the most aggressive primary brain tumor in adults, with limited survival despite maximal safe resection followed by chemoradiotherapy. Among the molecular markers currently used in clinical practice, O6-methylguanine-DNA methyltransferase (MGMT) promoter methylation has emerged as one of the most important predictive and prognostic factors, influencing both treatment response and survival outcome.

This paper reviews the role of MGMT promoter methylation in glioblastoma, emphasizing its impact on therapeutic decision-making and patient stratification. MGMT promoter methylation reduces DNA repair capacity and increases tumor sensitivity to alkylating agents, particularly temozolomide. As a result, patients with methylated MGMT generally derive greater benefit from standard Stupp protocol chemoradiotherapy compared with those with unmethylated tumors. Beyond its predictive role, MGMT methylation is also associated with improved overall survival and progression-free survival, making it a valuable prognostic biomarker.

Despite its clinical relevance, interpretation of MGMT status may be influenced by methodological variability, tumor heterogeneity, and differences in assay platforms. These limitations highlight the need for standardized testing and careful integration of molecular data with clinical and radiological factors. In elderly or frail patients, MGMT promoter methylation may be particularly useful in guiding the choice between temozolomide-based therapy, radiotherapy alone, or individualized treatment approaches.

In conclusion, MGMT promoter methylation is a key biomarker in glioblastoma that supports precision medicine by refining prognosis and tailoring therapy. Incorporation of MGMT status into routine decision-making improves risk stratification and helps optimize treatment strategies aimed at prolonging survival while preserving quality of life.

Keywords: extended reality, tumor resection, vascular neurosurgery, VR, AR

MENINGIOMAS OF THE CEREBELLOPONTINE ANGLE: DIAGNOSTIC DILEMMAS, MICROSURGICAL TECHNIQUES AND COMPLICATION AVOIDANCE

Daniel Mihai Teleanu

Cerebellopontine angle (CPA) meningiomas are uncommon lesions that frequently create diagnostic dilemmas because their clinical and radiological presentation may closely mimic more common CPA tumors, particularly vestibular schwannomas. Accurate preoperative identification is essential, as surgical planning, expected morbidity, and cranial nerve risk differ significantly between these entities. This study highlights the importance of a detailed diagnostic workflow and a meticulous microsurgical strategy in the management of CPA meningiomas.

We present our institutional experience with surgically treated CPA meningiomas, focusing on the key preoperative imaging features, differential diagnostic pitfalls, operative corridors, and techniques used to minimize neurological complications. Patients typically presented with imbalance, facial sensory symptoms, headache, or multiple cranial nerve deficits. Magnetic resonance imaging was the cornerstone of diagnosis, although distinguishing meningioma from other CPA tumors remained challenging in several cases. Particular attention was given to tumor attachment, dural tail, calcification, hyperostosis, and the relationship to the internal auditory canal and adjacent neurovascular structures.

Microsurgical resection was tailored to tumor size, extension, and vascular involvement. The main principles included careful devascularization at the dural base, early identification and preservation of cranial nerves, maintenance of arachnoid planes, and continuous neurophysiological monitoring. These technical steps were essential to reduce morbidity, especially facial nerve dysfunction, lower cranial nerve injury, and postoperative cerebrospinal fluid leakage. In selected cases, subtotal resection was intentionally favored when the risk of neurological deficit outweighed the benefit of radical excision.

CPA meningiomas remain a surgically demanding subset of posterior fossa tumors. Their rarity, diagnostic overlap with other CPA lesions, and close relationship to critical neurovascular structures make them a relevant topic in contemporary neurosurgery. A structured diagnostic approach combined with refined microsurgical technique can improve resection quality while preserving neurological function and reducing complications.

INTRAOPERATIVE CORRELATION OF ANATOMICAL LANDMARKS USING NEURONAVIGATION AND ROBOTIC SYSTEMS IN NEUROSURGERY

Prodan Alexandru, Ana Isabela Dobrin, Cristian Alexandru Profire, Anastasia Parascheva Sandu, Catherine-Teodora Costan, Alexandra-Elena Moldoveanu

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Introduction: The integration of advanced technologies such as neuronavigation, artificial intelligence (AI), virtual reality (VR), and robotic systems has revolutionized neurosurgery. These tools enhance surgical precision, support preoperative planning and intraoperative decision-making, enable immersive simulation-based training, and allow minimally invasive procedures with reduced recovery times. This study explores their synergistic use, focusing on surgical accuracy, efficiency, and patient safety.

Materials and methods:

Ten consecutive cranio-cerebral interventions were analyzed at the "Prof. Dr. Nicolae Oblu" Neurosurgery Hospital in Iasi, using the Stealth Station S8 Navigation System (Medtronic), the Rosa Robotic Arm, and the Medtronic Robotic Biopsy System. Preoperative plans were created and access trajectories defined, identifying eloquent anatomical structures including the anterior clinoid processes, cavernous sinus, origin of the M1 segment of the middle cerebral artery, and motor/premotor areas. Direct intraoperative correlations were established and localization error was calculated using neuronavigation systems. Additionally, 7 relevant articles were selected from PubMed and Scopus Library to evaluate concordance with current literature.

Results: Submillimetric errors were achieved in identifying pathological findings and critical structures, including eloquent cortical areas, major vascular elements, and cranial nerves. The fusion of CT, MRI, and 3D angiography, combined with intraoperative imaging correction using CT or ultrasound, reduced localization errors to near zero.

Conclusions: The integration of neuronavigation, AI, VR, and robotic systems in neurosurgery demonstrates remarkable improvements in surgical precision and patient safety. The results confirm the potential of these technologies to minimize errors and enhance identification of critical anatomical structures. As these innovations evolve, they promise further advancements in surgical outcomes and methodologies.

Keywords: neuronavigation, AI, VR, robotic surgery, computer-aided surgery, anatomical landmarks.

References:

1. Kaewborisutsakul A, Chernov M, Yokosako S, Kubota Y. Usefulness of Robotic Stereotactic Assistance (ROSA®) Device for Stereoelectroencephalography Electrode Implantation: A Systematic Review and Meta-analysis. *Neurol Med Chir (Tokyo)*. 2024;64(2):71-86. doi:10.2176/jns-nmc.2023-0119.

2. Porto Junior S, Meira DA, Cunha BLB, et al. Robot-assisted stereotactic brain biopsy: A systematic review and meta-analysis. *Neurosurg Rev.* 2024;47(1):886. doi:10.1007/s10143-024-03122-4.
3. Mallereau CH, Chibbaro S, Ganau M, et al. Pushing the boundaries of accuracy and reliability during stereotactic procedures: A prospective study on 526 biopsies comparing the frameless robotic and image-guided surgery systems. *J Clin Neurosci.* 2022;95:203-212. doi:10.1016/j.jocn.2021.11.034.
4. Sulangi AJAJ, Husain A, Lei H, Okun J. Neuronavigation in glioma resection: Current applications, challenges, and clinical outcomes. *Front Surg.* 2024;11:1430567. doi:10.3389/fsurg.2024.1430567.
5. Gerard IJ, Kersten-Oertel M, Hall JA, Sirhan D, Collins DL. Brain Shift in Neuronavigation of Brain Tumors: An Updated Review of Intraoperative Ultrasound Applications. *Front Oncol.* 2021;10:618837. doi:10.3389/fonc.2020.618837.
6. von Langsdorff D, Reinacher P, Kallemeyn N, et al. Accuracy of Robotic and Frame-Based Stereotactic Neurosurgery in a Phantom Model. *Front Neurobot.* 2022;16:762317. doi:10.3389/fnbot.2022.762317.
7. Rivas M, Kretschmar M, George A, et al. Automatic Path-Planning Techniques for Minimally Invasive Stereotactic Neurosurgical Procedures—A Systematic Review. *Sensors (Basel).* 2024;24(16):5238. doi:10.3390/s24165238.

BEYOND SURVIVAL: STAGED MULTIDISCIPLINARY MANAGEMENT AND RECONSTRUCTION OF SEVERE FRONTO-BASAL SKULL BASE TRAUMA

Catherine-Teodora Costan

Introduction: High-energy fronto-basal trauma poses a major neurosurgical challenge, involving dural compromise, CSF rhinorrhea risk, and brain contusions. While acute care prioritizes life-saving stabilization and intracranial integrity, resulting bone defects demand complex secondary reconstruction.

Materials and methods:

A 40-year-old male was admitted after a high-velocity motor vehicle accident with an open cranio-cerebral wound and GCS 3. CT revealed complex, comminuted fronto-orbito-ethmoidal bilateral fractures extending to the sphenoid wings and carotid canal. Emergency surgery included debridement, hemostasis, and fronto-basal dural repair using an artificial graft to isolate the intracranial space from the paranasal sinuses. After a 4-week coma and neurological stabilization, the patient returned 4 months later with a significant fronto-basal bone defect and lagophthalmos. Secondary reconstruction employed a custom titanium mesh via 3D digital planning and stereophotogrammetry (LifeViz). A 1g gold weight was placed in the upper eyelid in order to treat the lagophthalmos.

Results: Primary neurosurgical management prevented infectious complications and CSF leaks. Secondary 3D-planned reconstruction achieved precise anatomical restoration of the fronto-basal contour and orbital roof. Lagophthalmos fully resolved, frontal lobes were adequately protected, and the patient regained functional autonomy without late neurological deficits.

Conclusions: Complex skull base trauma requires a staged approach: initial focus on dural integrity is life-saving, while 3D digital technologies enable precise secondary skeletal restoration. This multidisciplinary strategy is essential for neurological safety and functional recovery.

Keywords: Frontobasal trauma, dural repair, skull base reconstruction, 3D planning, titanium mesh.

References: Clinical records and imaging archives, Department of Neurosurgery and Oral & Maxillofacial Surgery.

MAPPING BRN3B CELL POPULATIONS OF THE SUPERIOR COLLICULUS AND PERIAQUEDUCTAL GRAY

Edwin Humberto Hodelin Maynard

Introduction: Visual evoked defensive behaviors (VEDB) are innate responses that prevent animals from being harmed by potential threats. The use of stereotactic surgery combined with molecular biology, genetic engineering and other techniques has allowed the study of the structure and function of nervous system areas like the Superior Colliculus (SC) and the Periaqueductal Gray (PAG) in animal models. The aim of this research is to understand the neuroanatomy of the SC and PAG Brn3b neurons involved in visual evoked defensive behavior.

Materials and methods:

We targeted different dorsoventral and mediolateral positions of the SC and the dorsolateral PAG using stereotactic injections of Cre-dependent AAV-FLEX-tdTomato virus in Brn3bCre mice. Intracardiac paraformaldehyde fixation was performed on day 30 after injection, followed by retina and brain dissection/sectioning, and imaging at low (X5) and high-resolution (X20).

Results:

Neurons expressing Brn3b are present ipsilateral to the injection site from superficial, intermediate and deep layers of the SC, and in the dorsolateral and dorsomedial PAG. Furthermore, we observed that neurons located in the medial part of the SC project in a selective way to structures like the ipsilateral dorsal terminal nucleus of the accessory optic tract and the bilateral lateral posterior thalamic nucleus (LPTN). Additionally, we found that neurons located in the lateral SC project in a specific way to the ipsilateral dorsomedial and dorsolateral PAG, central thalamic structures, hypothalamic area and bilateral LPTN.

Conclusions:

Our findings revealed key neural circuits located in the midbrain, thalamus, hypothalamus, and PAG, which underlie the regulation of visually evoked defensive behaviors. Furthermore, a better understanding of these circuits may help elucidate the anatomical basis of functional dysregulations in structures such as the PAG that give rise to psychiatric disorders in humans. The potential use of this information for the development of new therapeutic approaches in the fields of psychosurgery or pharmacology remains to be determined.

WHITE MATTER QUANTITATIVE ANOMALIES AND CLINICAL OUTCOME IN DRUG-RESISTANT EPILEPSIES

Edwin Humberto Hodelin Maynard

Introduction: To evaluate the relationship between cerebral white matter quantitative anomalies and postoperative clinical outcomes in patients with drug-resistant focal epilepsies.

Materials and methods: We used the automatic fibre quantification methodology to determine the global and segmental diffusional anomalies in cerebral white matter tracts, assessed by Magnetic Resonance Imaging in eight patients with frontal lobe epilepsy and twelve with temporal lobe epilepsy candidates and/or undergoing epilepsy surgery. We studied the fractional anisotropy, mean diffusivity, volume, and number of fibres of white matter tracts related to the physiopathologic mechanism of these types of epilepsies. The information was compared with the obtained from nineteen healthy controls and between patients with seizure freedom and those with seizure recurrence one year after epilepsy surgery.

Results: Significant pre- and postsurgical global and segmental white matter abnormalities were characterized by increased mean diffusivity and decreased fractional anisotropy, volume, and number of fibres in tracts from both hemispheres. These abnormalities can be reinforced or expressed de novo in the post-surgical period.

Temporal lobe epilepsy patients with postoperative seizure freedom had preoperative increased global mean diffusivity of the contralateral inferior longitudinal fasciculus and uncinate fasciculus. Furthermore, drug-resistant epilepsy patients with seizure freedom had a preoperative segmental increased mean diffusivity in the contralateral thalamic radiation.

Additionally, frontal lobe epilepsy patients with seizure freedom exhibited postsurgical increases in the number of fibres of the ipsilateral thalamic radiation and contralateral inferior longitudinal fasciculus. Furthermore, temporal lobe epilepsy patients with seizure freedom had a postsurgical lower global mean diffusivity in the ipsilateral inferior fronto-occipital fasciculus.

Neurons expressing Brn3b are present ipsilateral to the injection site from superficial, intermediate and deep layers of the SC, and in the dorsolateral and dorsomedial PAG. Furthermore, we observed that neurons located in the medial part of the SC project in a selective way to structures like the ipsilateral dorsal terminal nucleus of the accessory optic tract and the bilateral lateral posterior thalamic nucleus (LPTN). Additionally, we found that neurons located in the lateral SC project in a specific way to the ipsilateral dorsomedial and dorsolateral PAG, central thalamic structures, hypothalamic area and bilateral LPTN.

Conclusions: Patients with drug-resistant epilepsies have global and segmental quantitative cerebral white matter tract anomalies, which suggest cerebral neural involvement in this disease. These abnormalities can vary concerning the postsurgical clinical outcome. The postsurgical white matter changes suggest the reorganisation of the neural network in this disease.

ENDOSCOPIC MICRO-INSPECTION IN MICROVASCULAR DECOMPRESSION FOR NEUROVASCULAR COMPRESSION SYNDROMES: A SINGLE-CENTER EXPERIENCE

Felix Mircea Brehar

Introduction: Microvascular decompression (MVD) is one of the most effective surgical treatments for neurovascular compression syndromes, including trigeminal neuralgia, hemifacial spasm, and glossopharyngeal neuralgia [1]. However, recurrences remain a clinically relevant concern in up to 15-25% of cases [1, 2]. In this context, endoscopic assistance as an adjunct to microsurgery has the potential to improve the identification of neurovascular conflicts, thereby reducing the risk of incomplete decompression and subsequent recurrences [3].

Materials and methods: We conducted a retrospective single-center observational study including patients who underwent microvascular decompression for trigeminal neuralgia, hemifacial spasm, and glossopharyngeal neuralgia at our institution between January 2020 and November 2025. We evaluated the outcomes of 40 patients treated by endoscope-assisted MVD (using the QEVO® endoscope) versus conventional microscopic MVD.

Results: We analyzed data from 40 patients who underwent MVD, including 16 males (40%) and 24 females (60%). The most common indication was trigeminal neuralgia in 32 patients (80%), followed by hemifacial spasm in 5 patients (12.5%), combined trigeminal neuralgia and hemifacial spasm in 2 patients (5%), and glossopharyngeal neuralgia in 1 patient (2.5%). Arterial conflict was the triggering factor in the majority of cases. No perioperative mortality was recorded. Patients in whom QEVO® endoscopic assistance was used had better overall outcomes compared with patients treated with microsurgery alone. QEVO® endoscopic assistance improved intraoperative visualization and enabled the identification of additional neurovascular conflicts in a subset of patients.

Conclusions: Endoscopic micro-inspection appears to be a valuable adjunct to standard microscopic microvascular decompression. It enhances visualization of neurovascular conflicts and may contribute to improved surgical outcomes in selected patients.

Keywords: microvascular decompression; trigeminal neuralgia; hemifacial spasm; QEVO; endoscopy.

References:

1. Okon, II, Menon SS, Osama M, Aiman M, Paleare LFF, Eliseo DL, 3rd, et al. Microvascular decompression: a contemporary update. BMC Surg. 2025;25(1):20.
2. Wang X, Wang H, Chen S, Liang H, Wang H, Xu M, et al. The long-term clinical outcomes of microvascular decompression for treatment of trigeminal neuralgia compressed by the vertebro-basilar artery: a case series review. BMC Neurology. 2019;19(1):217.
3. Luzzi S, Del Maestro M, Trovarelli D, De Paulis D, Dechordi SR, Di Vitantonio H, et al. Endoscope-Assisted Microneurosurgery for Neurovascular Compression Syndromes: Basic Principles, Methodology, and Technical Notes. Asian J Neurosurg. 2019;14(1):193-200.

CHARTING THE GLIOBLASTOMA ATLAS: INTEGRATING PROTEOMICS, LIQUID BIOPSY, AND FUNCTIONAL DRUG TESTING WITHIN THE PERCAREGLIO PROJECT

Felix Mircea Brehar

Introduction: Accounting for almost half of all gliomas in adults, glioblastoma (GBM) represents one of the most aggressive and frequently encountered primary malignant tumors of the central nervous system [1]. In the last decades, the focus on biomolecular aspects of its pathophysiology has led to a paradigm shift, changing forever not only the way we look at these lesions, but also the way we classify them [2]. However, despite the impact of recent advances in the biomolecular and neuroimaging fields, the prognosis of GBM remains dismal, with a median survival rate of 15 months from the diagnosis [3], which highlights the urgent need for novel biomarkers and therapeutic strategies.

Materials and methods:

PerCareGlio is an ongoing multicentric translational initiative (May 2025-December 2027) that integrates various factors, such as the proteomic and phosphoproteomic analysis, the development of primary-derived cultures from tumoral samples, drug sensitivity testing, and the analysis of distinct biomarkers, in order to better predict recurrence and to understand the miRNA profiles. Furthermore, longitudinal liquid biopsy monitoring and molecular profiling are integrated into a comprehensive platform for individualized patient assessment. The generated datasets support individualized therapeutic management.

Results: The project aims to develop an integrated platform for personalized medicine available for GBM patients. The PerCareGlio framework is expected to enable the characterization of the proteomic and phosphoproteomic tumor profile, identification of potential targeted therapeutic strategies, evaluation of biomarkers and miRNA signatures for recurrence prediction, and correlation of molecular signatures with treatment response.

Conclusions: PerCareGlio proposes an innovative framework that combines biomolecular profiling, liquid biopsy, and ex vivo testing of drug sensitivities, in order to facilitate the transition through a truly personalized approach for GBM patients.

Keywords: glioblastoma, proteomics and phosphoproteomics, liquid biopsy, biomarkers, translational medicine, miRNA profiling.

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References:

1. Królikowska K, Błaszczak K, Ławicki S, Zajkowska M, Gudowska-Sawczuk M. Glioblastoma—A Contemporary Overview of Epidemiology, Classification, Pathogenesis, Diagnosis, and Treatment: A Review Article. *International Journal of Molecular Sciences*. 2025;26(24):12162.

2. Louis DN, Perry A, Wesseling P, Brat DJ, Cree IA, Figarella-Branger D, et al. The 2021 WHO Classification of Tumors of the Central Nervous System: a summary. *Neuro Oncol.* 2021;23(8):1231-51.
3. Tan AC, Ashley DM, López GY, Malinzak M, Friedman HS, Khasraw M. Management of glioblastoma: State of the art and future directions. *CA: A Cancer Journal for Clinicians.* 2020;70(4):299-312.

VASCULAR

FAMILIAL CEREBRAL CAVERNOMATOSIS IN A PEDIATRIC PATIENT

Vasil Mina Teodora

Introduction: CCMs are the second most common CNS vascular malformations which consist of abnormal sinuous structures prone to recurrent microhemorrhages, leading to inflammation, periregional gliosis and hemosiderin deposition. Symptomatic lesional hemorrhages usually associate headaches, epileptic seizures, impaired consciousness and new or worsened FND referable to the anatomic location. Familial cavernomatosis, a condition usually inherited following an autosomal dominant trait, associates more or so the same symptoms with the main focus being on ICH.

Case presentation: A 3-year-old female patient with no history of other neurological pathologies presented to our clinic after she suffered convulsive seizures, followed by ataxia, decreased level of consciousness and lethargy. As additional symptoms, the patient associated high fever and irritability before she started experiencing the seizures. Giving into consideration the patient's family history, with first degree relatives such as her 5 year old brother, her grandfather and her aunt on mother's side all suffering from cavernomatosis, an MRI was performed right away. Neuroimaging revealed two cavernomas, which led to ICH and therefore her symptoms. Since the lesions were superficially located, above 2 cm and led to the above listed symptoms, a surgical resection was performed. The surgeon successfully achieved a total resection and postoperatively the patient did not present any common complications. Her neurological state was evaluated as normal and she did not present any other signs of hemorrhage.

Discussions: Surgeons have to bear in mind the vital importance of total resection in the case of this type of vascular malformation, since this is the only way to eliminate any risk of rebleeding through abnormal vessels, need for further reoperation and progression of neurological deficits. Also, children with FCCMs become adults with FCCMs, and the implication for counseling and follow-ups are highly relevant.

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WHEN CLIPPING GETS DIFFICULT: SURGERY OF MULTIPLE CEREBRAL ANEURYSMS

Mugurel Petrinel Radoi

Background: Multiple intracranial aneurysms are identified in approximately 15–35% of patients with cerebral aneurysms, with most clinical series reporting a prevalence of about 20–30%. Multiplicity is also clinically important because the ruptured aneurysm may not always be the largest one, so careful angiographic assessment is needed.

Methods: From a retrospective review of 128 consecutive patients treated by surgical clipping between January 2023- May 2026, a number of 32 presented multiple aneurysms. Most of them were located within the anterior circulation. The most frequent combination were: middle cerebral artery (MCA) /internal carotid artery, MCA and anterior communicating artery (ACom). A particular situation is the presence of double/”kissing” aneurysms. In our review the most frequent location for „kissing-aneurysms” were ACom and MCA aneurysms. At admission, the clinical condition of all patients was classified according to the Hunt and Hess scale. Clinical outcome was graded according to the modified Rankin scale. The follow-up period varied widely from 2 to 34 months (mean 16 months).

Results: Surgical clipping was performed for the ruptured aneurysm in all cases. Whenever was possible, through the same approach, clipping was performed for the rest of unruptured aneurysms. Seven patients presented with significant hematoma which required the evacuation of the clot. Post-operative control angiography was performed in 11 patients (34,5%), from which we reported a full occlusion of the aneurysm in 10 patients (90%). Perioperative mortality was 9,3% (3 patients). The outcome was graded mRankin 0–2 in 65.5 % of the cases (21 patients) at the end of the first postoperative months, and 75% (24 patients) at six months follow-up.

Conclusions: Aneurysms clipping is a difficult surgery, but in the presence of multiple aneurysms, the pressure for a neurovascular surgeon in terms of the outcome is even bigger, so even the experienced neurosurgeon has to weighted very carefully his decision how to approach these particular patients.

Keywords: multiple cerebral aneurysms, retrospective review, microsurgical clipping, postoperative results

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ANATOMICAL AND HEMODYNAMIC CHARACTERISTICS OF ANEURYSMS ASSOCIATED WITH THE FETAL-TYPE POSTERIOR COMMUNICATING ARTERY

Butnariu Andreea-Daniela

Background:

The fetal-type posterior communicating artery (fPCoMA) is a common anatomical variant of the cerebral circulation in which the posterior cerebral artery (PCA) receives its primary blood supply from the internal carotid artery (ICA) rather than the vertebrobasilar system. This variation significantly modifies cerebral hemodynamics by increasing the dependence of the posterior cerebral territory on the anterior circulation. Consequently, blood flow through the fetal-type posterior communicating artery is characterized by greater flow volume and velocity compared with the adult configuration, while flow within the ipsilateral P1 segment is often hypoplastic or absent.

The altered flow dynamics associated with the fetal-type PCoMA influence collateral circulation, cerebral autoregulation, and the redistribution of blood during carotid or vertebrobasilar arterial disease. Computational fluid dynamics and advanced imaging studies have further demonstrated changes in wall shear stress, pressure gradients, and flow patterns at the ICA–PCoMA junction, potentially contributing to the development of intracranial aneurysms at this location.

Objective: To perform an analysis of the anatomical and hemodynamic characteristics of the fetal-type posterior communicating artery, with particular emphasis on vessel morphology, flow distribution, and collateral circulation. The study aims to evaluate the influence of the fetal-type variant on cerebral hemodynamics, including flow velocity, flow volume, wall shear stress, and pressure gradients, and to assess its association with the development of posterior communicating artery aneurysms. Additionally, the study seeks to determine the clinical implications of these anatomical and flow-related differences for aneurysm formation, ischemic stroke risk, cerebrovascular imaging interpretation, and surgical or endovascular treatment planning.

Material and methods: A retrospective observational study was conducted on patients who underwent surgical treatment for posterior communicating artery (PCoMA) aneurysms during 2025. A total of 25 PCoMA aneurysms were surgically treated, of which 7 were associated with a fetal-type posterior communicating artery (fPCoMA). Patients with fetal-type PCoMA aneurysms were identified based on preoperative vascular imaging, and their anatomical and hemodynamic characteristics were analyzed and compared with those of patients presenting the adult-type PCoMA configuration.

Result:

Among the 25 surgically treated posterior communicating artery (PCoMA) aneurysms, 7 (28%) were associated with a fetal-type posterior communicating artery (fPCoMA), while 18 (72%) exhibited the adult-type configuration. Compared with the adult-type group, fetal-type PCoMA

aneurysms were associated with a larger-caliber posterior communicating artery and a hypoplastic or absent ipsilateral P1 segment. Intraoperatively, aneurysms arising from the fetal-type PComA demonstrated a closer anatomical relationship with the dominant fetal vessel, making microsurgical dissection and clip placement more technically demanding because preservation of the fetal artery was essential to maintain posterior cerebral artery perfusion.

The fetal-type configuration was associated with altered hemodynamic conditions, characterized by increased blood flow through the PComA and a greater hemodynamic load at the aneurysm neck. These anatomical and flow characteristics may contribute to aneurysm formation and influence surgical planning. Despite the increased technical complexity, complete aneurysm occlusion was achieved in all cases, with preservation of the fetal-type PComA and no procedure-related ischemic complications within the posterior cerebral artery territory.

Conclusion: The fetal-type posterior communicating artery represents a clinically significant anatomical variant that substantially alters fetal-type posterior communicating artery and the hemodynamic environment at the posterior communicating artery. Comparative analysis demonstrated that aneurysms associated with the fetal-type configuration exhibit distinct anatomical relationships and flow characteristics compared with those of the adult-type configuration, resulting in increased surgical complexity and specific technical considerations. A thorough preoperative assessment of vascular anatomy and hemodynamics is essential for optimal surgical planning, preservation of the fetal circulation, and reduction of ischemic complications. Recognition of these anatomical and hemodynamic variations contributes to improved risk stratification and supports individualized microsurgical and endovascular treatment strategies.

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SINGLE-STAGE SURGICAL CLIPPING AND RESECTION OF IPSILATERAL DUAL MCA ANEURYSMS AND AN ANTERIOR CLINICAL MENINGIOMA ENCASING THE INTERNAL CAROTID ARTERY AND OPTIC NERVE

Pirogan Nae Diana

Introduction: The coexistence of intracranial meningioma and cerebral aneurysms is a rare clinical entity, presenting formidable challenges in surgical planning and execution. This is particularly true for anterior clinoid process meningiomas that envelop critical structures like the ICA and the optic nerve, while closely neighbouring multiple middle cerebral artery aneurysms. Dissecting a firm tumour mass from encased, highly sensitive neurovascular structures while maintaining proximal control and preventing the catastrophic rupture of adjacent aneurysms demands meticulous microsurgical strategy.

Material and methods: It's a case of a 65-year-old female patient who presented with headache, visual disturbances, and clinical signs of increased intracranial pressure. Cerebral digital subtraction angiography revealed a complex multi-aneurysmal disease with a total of four intracranial lesions - a saccular aneurysm located at the bifurcation of the right MCA, laterally oriented, (measuring 10x7x7.5mm with a 3.7mm neck) along with a secondary aneurysm situated distally on a sylvan branch (1.7mm with a 1.4mm neck). The pan-aneurysmal disease also included a contralateral mirror aneurysm at the left MCA bifurcation (2.5x2.5x3.5mm, 2.8mm neck) and a micro-aneurysm at the basilar trunk (0.7mm with 1.7mm neck). Concurrently, a contrast enhanced brain CT scan identified an anterior clinoid process meningioma at the same surgical site, which fully encased the right internal carotid artery and the right optic nerve. The patient underwent a single-stage surgical intervention via a pterional craniotomy. Microsurgical tumor resection and clipping of both aneurysms were successfully performed during the same procedure.

Results: A single-stage microsurgical intervention was successfully performed, prioritising vascular safety. To mitigate the critical risk of premature aneurysm rupture during tumor manipulation, the aneurysms were addressed and secured prior to tumor resection. The large right MCA bifurcation aneurysm was definitively excluded using a multi-clipping technique with 3 straight clips (9mm and 11mm). The smaller distal Sylvian branch aneurysm was secured using a single 7mm straight clip. Intraoperative microvascular Doppler ultrasonography was utilised to confirm the complete exclusion of both aneurysms sacs while strictly verifying the preservation of distal blood flow in all parental and branching arteries. Following successful aneurysm exclusion, microsurgical ablation of the anterior clinoid meningioma was performed. Using meticulous dissection, the tumor was progressively debulked and completely removed from the right optic nerve and the encased ICA without causing any structural or ischemic damage. A routine control angioCT scan confirmed total tumor removal, accurate clip placement, and the complete absence of ischemic complications, hepatomas or brain edema. The patient showed rapid and excellent neurological recovery - she was mobilised early, no motor deficits, intact visual function, and a complete resolution of her clinical symptoms.

Conclusions: The successful single-stage management of concurrent complex neurovascular and neoplastic lesions heavily depends on meticulous surgical planning and strategic stepwise execution. This case highlights that a profound understanding of preoperative imaging and advanced proficiency in microsurgical clipping techniques are mandatory for safely saving hostile anatomy. Prioritising aneurysm exclusion before tumor ablation to prevent catastrophic intraoperative rupture, combined with the mandatory use of intraoperative microvascular Doppler to confirm vascular potency, ensures maximal surgical safety.

Keywords: Anterior clinoid meningioma, multiple intracranial aneurysms, single-stage surgery, intraoperative Doppler, microsurgical clipping

References:

1. Piazzetti FA, et al. Coexistence of intracranial meningiomas and cerebral aneurysms: a systematic review of clinical characteristics and surgical outcomes. J.Neurosurg Sci. 2021; 65 (3):245-252.
2. O'Connor KP, et al. Single-stage management of coexisting intracranial tumors and cerebral aneurysms:tactical considerations. World Neurosurgeon. 2019; 128:e340-e349.
3. Institutional medical records, operative protocol, and radiological archives (care stream/hippocrate systems) - emergency clinical hospital Bagdasar Arseni, Bucharest, Romania. 2026.

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SURGICAL MANAGEMENT OF A GIANT MIDDLE CEREBRAL ARTERY ANEURYSM: CASE REPORT AND POSTOPERATIVE CONSIDERATIONS

Valentina-Simina Uțiu

Introduction: Giant cerebral aneurysm present a significant therapeutic challenge because of their high risk of rupture and their exclusion from the circulation.

Material and methods:

A 66-year-old female presented with a two months history of progressive speech disturbances. Neurological examination revealed mild language difficulties and no focal motor deficits. An angiography was performed and it revealed the presence of a giant unruptured aneurysm, partially thrombosed and measuring 2/2 cm, located on the M3 segment of the left middle cerebral artery. Also, there was significant peripheral thrombus and local mass effect.

Microsurgical treatment was performed through a left pterional and transsylvian approach were performed. Microsurgical dissection exposed a giant M3 middle cerebral artery aneurysm, partially thrombosed. After temporary proximal and distal vascular control, the aneurysm sac was opened and thrombectomy was carried out, resulting in significant reduction of aneurysm volume and achieving decompression of the surrounding structures. The anatomy of the aneurysm was complex, but the complete resection was still performed and followed by end-to-end microsurgical reconstruction of the parent vessel.

Results:

A postoperative computed tomography was performed and it confirmed the patency of distal branches and complete exclusion of the aneurysm, with no pathological contrast enhancement.

The patient's clinical outcome was favorable, with resolution of the preexisting speech deficits.

Conclusion: In conclusion, surgical treatment of aneurysm remains complex, and therapeutic success relies on meticulous dissection and proactive management of potential complications, such as vasospasm and cerebral edema.

Keywords: aneurysm, middle cerebral artery, microsurgical treatment

A RARE PEDIATRIC NON-GALENIC PIAL ARTERIOVENOUS FISTULA: PARTICULARITIES OF ENDOVASCULAR TREATMENT

Ana Isabela Dobrin

Introduction: Pediatric non-galenic pial arteriovenous fistulas (pAVFs) are rare cerebrovascular malformations characterized by a direct pial arteriovenous connection and variable symptomatology. Early diagnosis and individualized management are crucial due to their typically poor natural history if left untreated, as well as their anatomical vascular peculiarities correlated with clinical manifestations. Endovascular treatment has emerged as a preferred option with promising outcomes.

Case report: We report the case of a 3-years-old infant who presented with recurrent focal seizures, vomiting, orthostatic disturbances and progressive cognitive decline. Magnetic resonance angiography (MRA) and digital subtraction angiography (DSA) confirmed the presence of a cerebellar pAVF. Considering the age, the right femoral approach was performed under echographic guidance, then the 4F guidance system was inserted under biplane angiographycal control. The radiological dosimetry parameters and contrast substance were continuously monitored. The technical difficulty consisted in the fact that the implants (microcoils) did not have stability at the fistula point due to high velocity flow, so it was decided to place a stent in the artery-venous fistulous point just near the venous varix dilation junction area. In this way, the anchoring of the microcoils implants was achieved much easier.

Results: Particular endovascular embolization technique achieved complete obliteration of the pAVF without any postprocedural complications. Clinical follow-up demonstrated a favorable neurological outcome.

Conclusion: This case highlights the importance of early diagnosis using appropriate imaging and the need to adapt treatment to the specific vascular anatomy, especially in pediatric patients. Endovascular management represents an effective and safe treatment option for preventing life-threatening complications and achieving positive clinical outcomes in this rare condition.

MULTIMODAL TREATMENT OF A RUPTURED PEDIATRIC DISSECTING M2 MIDDLE CEREBRAL ARTERY PSEUDOANEURYSM WITH MASSIVE HEMORRHAGIC PRESENTATION: A CASE REPORT

Ane-Marie Mironescu¹, Rares Cristian Filep, MD², Constantin Lucian Sopanda, MD, Assistant Lecturer^{1, 3}

Introduction: Pediatric intracranial dissecting aneurysms are rare and potentially fatal vascular lesions. Distal middle cerebral artery (MCA) pseudoaneurysms are particularly uncommon, and no standardized treatment strategy exists because of their low incidence. We report the successful management of a ruptured dissecting M2 pseudoaneurysm in a 13 year old patient presenting with catastrophic intracranial hemorrhage.

Material and methods: A previously healthy 13 year old girl presented with sudden-onset headache, nausea, vomiting, and rapid neurological deterioration. Cranial computed tomography revealed a right frontotemporal intracerebral hematoma (19 cm³), diffuse subarachnoid hemorrhage with intraventricular extension, and a 7 mm midline shift. CT angiography demonstrated a ruptured dissecting pseudoaneurysm arising from a frontal M2 branch of the right MCA. Following focal seizures and deterioration to a Glasgow Coma Scale (GCS) score of 8, emergency endovascular treatment was undertaken. Although embolization with Squid 12 achieved aneurysm occlusion, embolic migration caused acute MCA occlusion. Immediate rescue mechanical thrombectomy using a stent retriever and aspiration catheter successfully restored vessel patency. Subsequently, malignant cerebral edema and mass effect required urgent microsurgical evacuation of the hematoma and decompressive frontotemporoparietal craniectomy.

Results: Follow-up angiography confirmed complete and durable exclusion of the pseudoaneurysm without recanalization. Postoperative imaging demonstrated near-total hematoma evacuation and significant reduction of mass effect. Although ischemic lesions within the MCA territory were detected on follow-up MRI, the patient showed progressive neurological improvement during rehabilitation. At discharge, she was fully conscious (GCS 15), presented mild residual left hemiparesis (4/5), and achieved a modified Rankin Scale score of 3. No rebleeding or procedure-related delayed complications occurred.

Conclusions: This case highlights the effectiveness of a rapid multimodal strategy combining endovascular embolization, rescue thrombectomy, and decompressive neurosurgery in the treatment of a ruptured pediatric dissecting MCA pseudoaneurysm. Given the rarity of these lesions, this report contributes valuable clinical experience and supports individualized multidisciplinary management in severe pediatric neurovascular emergencies.

Keywords: Pediatric pseudoaneurysm, Middle cerebral artery, Endovascular embolization, Decompressive craniectomy

SURGICAL AND ANATOMICAL PARTICULARITIES OF MIDDLE CEREBRAL ARTERY BIFURCATION ANEURYSMS: A CASE SERIES

Corneliu Toader

Introduction: Middle cerebral artery bifurcation aneurysms represent one of the most common intracranial aneurysm locations and remain a significant challenge in cerebrovascular neurosurgery. A thorough understanding of the anatomy of the bifurcation of the middle cerebral artery helps the surgeon elaborate and conduct a successful surgery with complete aneurysm exclusion and preservation of blood flow.

Methods: We retrospectively reviewed a case series of patients diagnosed with ruptured middle cerebral artery aneurysms. We analyzed the clinical presentation, the anatomical characteristics of the middle cerebral artery branch from its origin, the aneurysm morphology and its relationships with surrounding structures. Surgical techniques were also analyzed in relation to general outcome and complications after surgery.

Results: The anatomical complexity of middle cerebral artery aneurysms arises from the variability of the bifurcation pattern and length of the M1 segment, the intimate relationship with perforating arteries, and the frequent incorporation of branch vessels into the aneurysm neck. Careful analysis of aneurysm neck width, complex branching configurations, aneurysm orientation, possible multiple rupture sites, vascular adhesions and the viability of a surgical corridor should be performed. Identification and preservation of perforating vessels, temporary vessel occlusion, and management of intraoperative rupture represent great challenges in aneurysmal surgery. Potential complications derived from the clipping strategy, such as immediate vessel occlusion or stenosis, ischemia from prolonged temporary clipping or disruption of perforating arteries and tardive vasospasm or thrombosis, may have serious implications on a patient's mortality and morbidities.

Conclusions: Understanding these anatomical and technical particularities is essential for optimizing surgical outcomes and minimizing procedure-related morbidity in patients with MCA bifurcation aneurysms.

Keywords: middle cerebral artery aneurysm, aneurysm rupture, anatomy, vascular anatomy, surgical technique.

MULTIDISCIPLINARY MANAGEMENT OF CEREBRAL ANEURYSMS: FROM CLIPPING TO COILING, STENT-ASSISTED TECHNIQUES, AND FLOW DIVERTERS—IS THERE STILL A PLACE FOR MICROSURGERY? A HIGH-VOLUME NEUROVASCULAR CENTER EXPERIENCE

Nicolaie Dobrin*, Alexandru Chiriac*, **, Lucian Eva*, Bogdan Dobrovat8*, **, Ana Isabela Dobrin***, Alexandru Cristian Profire***

Institution: Emergency Clinical Hospital „Prof. Dr. Nicolae Oblu”

The treatment of cerebral aneurysms has undergone a remarkable evolution over the last three decades, progressing from microsurgical clipping to increasingly sophisticated endovascular techniques. Coiling, stent-assisted coiling, flow diversion and intrasaccular devices have significantly changed treatment paradigms and expanded therapeutic possibilities. Despite these advances, microsurgical clipping continues to play an important role in selected cases.

The aim of this study was to review the evolution of aneurysm treatment strategies in a high-volume neurovascular center and to assess the contemporary role of microsurgery within a multidisciplinary framework.

A retrospective analysis was performed on cerebral aneurysm patients managed in our institution between 2021 and 2025. During this period, more than 1,000 patients with cerebral aneurysms were admitted to our department, making it one of the highest-volume neurovascular centers in the region. Endovascular treatment represented the dominant therapeutic modality, with conventional coiling and stent-assisted techniques accounting for most interventions. Microsurgical procedures represented approximately 3% of treated cases and were mainly indicated for aneurysm clipping or evacuation of associated intracerebral hematomas.

Procedure-related complications included two intraprocedural hemorrhagic events and four thromboembolic complications requiring rescue mechanical thrombectomy. Direct carotid access was successfully employed in other four patients when transfemoral navigation was not feasible. Representative complex cases included double-stent reconstruction of a posterior communicating artery aneurysm, treatment of a basilar artery aneurysm associated with arterial fenestration, combined carotid and posterior cerebral artery stenting with adjunctive coiling, and triple-microcatheter access of a recurrent anterior communicating artery aneurysm previously treated by microsurgical clipping.

Our experience demonstrates that advanced endovascular techniques have become the primary treatment option for most cerebral aneurysms. Nevertheless, microsurgical clipping remains indispensable in carefully selected patients. Contemporary aneurysm management should be based on a patient-specific multidisciplinary strategy that integrates endovascular innovation with microsurgical expertise to achieve optimal clinical outcomes.

WHEN MCA ANEURYSMS MIMIC HEMORRHAGIC STROKE: A CASE SERIES ON DIAGNOSIS AND MANAGEMENT

Erwin Alexandru Petrescu, Corneliu Toader, Chukwudi O. Okonkwo

Introduction: Ruptured middle cerebral artery typically presents with subarachnoid hemorrhage, but in some cases the rupture is so powerful that it dissects the pia mater and forms an intraparenchymal hemorrhage. The intracranial hemorrhage produces mass effect and distortion of normal anatomy, behaving like an expanding process. These increase the urgency and difficulty of intervention and require a surgical treatment attitude.

Methods: We retrospectively reviewed a case series of patients diagnosed with ruptured middle cerebral artery aneurysm associated with intraparenchymal hematoma. Clinical status at admission, radiological features, timing of intervention, treatment strategy and possible complications were analyzed.

Results: The cases showed variable clinical presentations, ranging from sudden headache and focal neurological deficits to rapid impairment of consciousness. The clinical pearls were the presence of an intense headache, neck stiffness and not very high blood pressure values. The imaging can have the biggest misleading effect in the diagnosis of ruptured aneurysms associated with intracerebral hemorrhage, the clue of subarachnoid hemorrhage sometimes being neglected, especially in presence of hematomas located in the middle cerebral artery territory. Urgent therapeutic decisions have to be taken in order to save the patient's life: early aneurysm securing, hematoma evacuation, control of possible internal hydrocephalus and intensive care treatment.

Conclusion: Intraparenchymal hemorrhage associated with aneurysmal rupture represents a severe clinical presentation that can sometimes be mistaken for a hemorrhagic stroke. Computed tomography angiography should be recommended in every intracerebral hemorrhage patient with low or merely increased blood pressure values and symptoms or signs of subarachnoid hemorrhage. Early recognition of an aneurysmal source is essential because the conservative treatment cannot prevent a second aneurysm rupture and the surgeon must be aware of the incoming surgical challenges when trying to evacuate the hematoma.

Keywords: middle cerebral artery aneurysm, intraparenchymal hemorrhage, aneurysm rupture, subarachnoid hemorrhage, hematoma evacuation, misleading diagnosis, emergency surgery.

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Mentions: abstract for Young Neurosurgeons' Corner.

TRAUMATIC ARTERIOVENOUS FISTULA OF THE SUPERFICIAL TEMPORAL ARTERY: A RARE CLINICAL ENTITY AND REVIEW OF SURGICAL MANAGEMENT

Profire Cristian-Alexandru

Institution: Emergency Clinical Hospital „Prof. Dr. Nicolae Oblu”

Introduction: Superficial temporal artery pseudoaneurysms and fistulas are rare clinical entities, with approximately 200 cases reported globally and only 4 cases documented at the Neurosurgery Clinic in Iași over a 30-year period. While primarily associated with closed craniocerebral trauma, these lesions can occasionally arise as iatrogenic complications following surgical revascularization or pterional craniotomies.

Case Report: We present the case of a 47-year-old male with a history of chronic alcoholism and recurrent head trauma was admitted with a persistent, pulsating headache and left-sided tinnitus, without focal neurological deficits. Notably, two years prior, he sustained blunt trauma to the left temporal region from a pitchfork handle. Three months post-injury, he developed a pulsatile temporal mass with a distinct systolo-diastolic bruit. Over the following year, the lesion progressed, causing significant engorgement of the local epicranial vascular network and an increasingly distressing murmur. Approximately one year post-injury, the patient observed a progressive engorgement of the left temporal epicranial vascular network, characterized by abnormally dilated vessels, alongside an exacerbation of the systolo-diastolic murmur, which became increasingly distressing.

Brain CT imaging ruled out intracranial pathology but showed dilation of the left superficial temporal artery. Color Doppler ultrasonography confirmed a high-turbulence, systolo-diastolic flow with both superficial and deep venous drainage. To precise the exact anatomical localization of the fistula for surgical planning, CTA with 3D reconstructions and digital subtraction angiography (DSA) were subsequently performed.

The surgical procedure was performed under general anesthesia. It involved the microsurgical dissection of the superficial temporal artery (STA), electrocoagulation of the recruited feeder vessels, and subsequent resection of the vascular mass. Histopathological examination of the resected specimen revealed arterial and venous fragments, alongside arterialized venous structures. The postoperative course was uneventful. The patient was discharged 7 days after the procedure. Clinical follow-up at 3 and 6 months postoperatively demonstrated complete resolution of the fistula.

Conclusion: A post-traumatic pulsatile mass in the temporozygomatic region warrants high clinical suspicion for a superficial temporal arteriovenous fistula. While Doppler ultrasonography confirms the diagnosis, CTA and DSA are mandatory for detailed anatomical localization and surgical planning. Although direct surgical resection remains definitively curative, minimally invasive endovascular approaches, such as coil embolization, represent increasingly viable modern alternatives.

COGNITIVE REHABILITATION AFTER HEMORRHAGIC STROKE: A FEUERSTEIN BASED APPROACH

Antonia Alexandra Iliescu, Sonia Lucaciu, Mircea Vicențiu Săceleanu

Introduction: Hemorrhagic stroke remains a major cause of long term disability in adults and a significant barrier to socio professional reintegration. Although advances in acute management have improved survival, many patients continue to experience persistent cognitive deficits, particularly executive dysfunctions. These impairments limit autonomy, decision making, and the ability to resume professional roles. Cognitive rehabilitation methods based on mediated learning, such as the Feuerstein approach, offer a structured framework for enhancing cognitive modifiability and functional recovery.

Methods: We report the case of a patient with a right temporo parietal hemorrhagic stroke and cardiovascular risk factors. Neuropsychological evaluation identified predominant executive dysfunction characterized by increased impulsivity, impaired planning and behavioral organization, and reduced inhibitory control. A 12 week cognitive rehabilitation program was implemented, consisting of 2–3 weekly sessions using tools from the Feuerstein Instrumental Enrichment program. Interventions were delivered through systematic mediation, targeting anticipatory planning, response modulation, and strategic behavior. Functional and cognitive outcomes were monitored throughout the program.

Results: Following the intervention, the patient demonstrated reduced impulsivity, increased response latency, and improved anticipatory planning. Behavioral organization and inhibitory control showed measurable improvement. Functionally, the patient achieved greater autonomy in daily activities and progressively resumed professional tasks in an adapted format. The observed gains indicate enhanced structural cognitive modifiability and successful transfer of trained strategies to real life contexts.

Conclusion: Mediated cognitive rehabilitation represents a valuable component in the management of neurosurgical patients recovering from hemorrhagic stroke. The Feuerstein method supports the restoration of executive functions by promoting strategic thinking, behavioral regulation, and cognitive flexibility. These improvements contribute directly to functional independence and facilitate socio professional reintegration. Structured cognitive interventions should be considered an essential element of comprehensive neurorehabilitation programs.

Keywords: hemorrhagic stroke; executive dysfunction; neurocognitive rehabilitation; mediated cognitive intervention; structural cognitive modifiability; professional reintegration.

SCIENTIFIC PRESENTATIONS

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Session I — Advances and Challenges in Contemporary Neurosurgery

1. **Quo Vadis, Neurosurgery? Five Decades of the Romanian Society of Neurosurgery in the Global Era** — Alexandru Vlad Ciurea
2. **Current Strategies for Removal of Brainstem Cavernous Malformations** — Helmut Bertalanffy
3. **Multidisciplinary management of cerebral aneurysms: from clipping to coiling, stent-assisted techniques, and flow diverters—is there still a place for microsurgery? a high-volume neurovascular center** — Nicolaie Dobrin
4. **Brain Cavernomas – When and How to Operate** — Stefan Florian
5. **Optimizing Acute Stroke Logistics: From Prehospital Triage to Mechanical Thrombectomy** — Sandor Nardai

Session II — Contemporary Strategies in Traumatic and Complex Spinal Surgery

1. **Management of A3 Fractures: Can We Reach a Consensus?** — Macel Ivanov
2. **Treatment of Osteoporotic Fractures in the Acute Setting** — Rares Chinezu
3. **Risk Factors for Instrumentation Failure After Anterior-Only Stabilization in Traumatic Subaxial Cervical Spine Injuries: A Systematic Review** — Mohamed Aly
4. **Technical Strategies in Cervical Spine Fixation: How I Do It** — Macel Ivanov
5. **Central or Axial Atlantoaxial and Vertical Subaxial Spinal Instability – Introduction of a Concept** — Atul Goel

Session III — Contemporary Perspectives in Pediatric Neurosurgery

1. **Syndromic Craniosynostosis: Advances in Surgical Management** — Luca Massimi
2. **Craniopharyngioma – What's the Best?** — Stefan Ioan Florian
3. **Pediatric Posterior Fossa Lesions: Current Surgical Strategies and Multimodal Management** — Miroslav Gjurasin
4. **Endoscopic Management of Sagittal Craniosynostosis: Current Concepts, Surgical Nuances and Clinical Outcomes** — Matei Claudiu
5. **Genetic Mutations in Unicoronal Craniosynostoses** — Federico Di Rocco
6. **Single-Suture Craniosynostosis: The Choice of the Surgical Approach** — Gianpiero Tamburini

Session IV — Spinal Trauma – Surgical Timing, Stabilization and Outcomes

1. **Return to Work After Surgical Versus Nonsurgical Treatment of Neurologically Intact Thoracolumbar Burst Fractures: Subanalysis of a Multicenter Prospective Observational Study** — Mohamed Aly
2. **The Clock Is Ticking: Surgical Timing in Spinal Cord Injury** — Macel Ivanov
3. **The Ankylosed Spine: Why Minor Trauma Can Become Major Surgery?** — Flaviu Tamas
4. **Construct Durability of the ULTRA-LIS Technique in 21 Patients with Cumulative Comorbidity Burden: A High-Risk Subgroup Analysis** — Stefan A. Mindea
5. **Diagnostic and treatment algorithm in pediatric spinal dysraphism** — Vadim Scutaru

6. **Lumbar Composite Stabilization in Osteoporotic Patients: A Consecutive Series of 24 High-Risk Cases** — Stefan A. Mindea

Session V — IANA Special Session I

1. **Hypervision, Medharanya and Integrated OR Suites – Leading Neurosurgery into the Future** — Iype Cheriyan
2. **Pediatric Low-Grade Gliomas – Surgical Challenges** — Vladimir Beneš Jr.
3. **Pineal region Meningiomas** — Stefan Ioan Florian
4. **Legacy of Yaşargil Persists in the Land of Herophilus: The Yeditepe University Microneurosurgery Laboratory** — Abuzer Gungor
5. **Microsurgical Anatomy of the Supracerebellar Infra-Transtentorial Approaches** — Abuzer Gungor
6. **Neuroanatomy of anterolateral skullbase approaches** — Daniel Roy

Session VI — Innovations and Advances in Spine Surgery

1. **Conceptual Approach to Spine Surgery** — Michael Spyrou
2. **Augmented Reality: Expanding the Horizons of Spine Surgery** — Marcel Ivanov
3. **Decision-Making in Spine Surgery** — Kantha Rasalingam
4. **Spinal Deformity Correction Techniques** — Onur Yaman
5. **Lumbar Peritoneal Shunting in different Neurological problems** — Michael Spyrou
6. **A Novel Composite Cement-Augmented Lumbar Interbody Stabilization Technique (ULTRA-LIS): Outcomes in 104 Consecutive Cases** — Stefan A. Mindea

Session VII — IANA Special Session II

1. **Hypertension and Spontaneous Intracerebral Hemorrhage: Cause or Association?** — Girish Menon
2. **Tentorial Meningiomas: What's Really in the Name?** — Girish Menon
3. **Vestibular nerve origin of Vestibular schwannoma and its implication in Facial nerve outcome** — Luciano Mastronardi
4. **Surgical Dilemmas in Endoscopic Endonasal Approach to Complex Craniopharyngiomas** — Ramesh Nair
5. **Surgery of Giant Vestibular Schwannomas** — Mario Amiratti

Session VIII — Pituitary and Peripheral Nerve Surgery: Current Perspective

1. **Linking Molecular Behavior with Neurosurgical Phenotypes in PitNETs, with a Focus on Predictors of Gross Total Resection** — Ligia Gabriela Tataranu
2. **Distal Nerve Transfer for Radial Nerve Reinnervation and Hand Function Restoration** — Lukas Rasulic
3. **Ethical Implications of Innovation: Balancing Progress and Patient Safety in Nerve Surgery** — Lukas Rasulic
4. **Is It Essential to Preserve Nerves in Spinal Schwannomas?** — Manas Panigrahi
5. **Surgery for supratentorial arachnoid cysts** — Manas Panigrahi

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Session IX — Microsurgical Management of Complex Cerebrovascular Diseases

1. **Skull Base Approaches for the Microsurgical Treatment of Complex AVMs** — Victor Volovici
2. **Microsurgical Revascularization for Occlusive Cerebrovascular Diseases: Surgical Nuances and Lessons from Moyamoya Disease** — Miki Fujimura
3. **Microsurgical Treatment of Grade 3 Arteriovenous Malformations** — Eduardo Vieira
4. **Decision Making and Microsurgical Treatment of High-Grade AVMs** — Melih Bozkurt
5. **Indications for Posterior Circulation Revascularization** — Victor Volovici
6. **Surgical Management of Cavernous Malformations Across Compartments: Supratentorial, Brainstem, and Extra-Axial Lesions** — Eduardo Vieira

Session X — Challenges and Innovations in Pediatric Neurosurgery

1. **Pineal Tumors in Children** — Carmine Mottolese
2. **Fronto-Orbital Advancement for Non-Syndromic Craniosynostosis** — Mihai Rusu
3. **Posterior Fossa Tumors – The Marie Curie Hospital Experience** — Mihaela Andrei
4. **Is the dentate nucleus responsible for the cerebellar mutism?** — Carmine Mottolese
5. **Spring-Assisted Surgery for Non-Syndromic Craniosynostosis** — Sorin Tarnoveanu
6. **IDH-Mutant Gliomas: Understanding the Patient Needs and Objectives to Build Personalized Pathways** — Pavel Sebastian

Session XI — Gliomas – Molecular Insights, Surgical Strategies and Clinical Outcomes

1. **Three Decades Experience of Treating Microsurgically Brainstem Gliomas** — Helmut Bertalanffy
2. **Mapping the swallow: from neuroanatomy and physiology to neurogenic dysphagia in neurosurgery** — Adrian Balasa
3. **The Predictive and Prognostic Value of MGMT Promoter Methylation in Glioblastoma: Tailoring Therapy and Optimizing Survival Outcomes** — Daniel Mihai Teleanu
4. **Sodium Fluorescein-Guided surgery in intramedullary cervical spinal cord ependymomas** — Luciano Mastronardi
5. **Surgical and seizure outcome in adult dysembryoplastic neuroepithelial tumors (DNET)** — Tomislav Sajko

Session XII — Cervical Spine Trauma

1. **Cervical spine trauma: AO classification, odontoid fractures particularities and treatment options in the elderly** — Rares Chinezu
2. **Cervico-thoracic junctional trauma** — Mohamed Aly
3. **SCI – treatment updates** — Cezar Popescu
4. **Difficulties in ankylosing spondylitis cervical lesions treatment** — Bogdan Costachescu
5. **Technical strategies in cervical spine reconstruction and fixation: how I do it** — Marcel Ivanov

Session XIII — Meningiomas and Skull Base

1. **Treatment Nuances in the Management of Meningiomas** — Adrian Balasa
2. **Meningioma in 2026: From Molecular Diagnosis to Therapeutical Management – Current Evidence and Emerging Frontiers** — Anamaria Girbovan
3. **Skull Base Surgery: The Good, the Bad, and the Ugly** — Anil Nanda
4. **Complications: Sacred and Profane** — Anil Nanda
5. **Meningiomas of the Cerebellopontine Angle: Diagnostic Dilemmas, Microsurgical Techniques and Complication Avoidance** — Daniel Mihai Teleanu
6. **Surgical management of giant anterior fossa meningiomas** — Toma Marius Papacoea

Session XIV — Surgical Frontiers in Cerebrovascular Disease

1. **Intracerebral transplantation of autologous bone marrow stem cells combined with recombinant peptide scaffold for chronic intracerebral hemorrhage** — Miki Fujimura
2. **History and current status of Carotid Endarterectomy** — Vladimir Priban
3. **Microsurgical Treatment of Wide-Necked aneurysms** — Eduardo Vieira
4. **Awake craniotomy in cerebrovascular surgery - two unusual cases** — Vladimir Priban
5. **Endoscopic Micro-Inspection in Microvascular Decompression for Neurovascular Compression Syndromes: A Single-Center Experience** — Felix Mircea Brehar
6. **Surgical and Anatomical Particularities of Middle Cerebral Artery Bifurcation Aneurysms: a case series** — Corneliu Toader

Session XV — Advanced Surgical Strategies in Complex Neurosurgery

1. **Revascularization for posterior circulation aneurysms** — Fady Charbel
2. **Roadmap to a Defensive Medicine in Brain Surgery** — Stefan Florian
3. **Patient-tailored surgical technique for pituitary adenoma resection** — Daniel Rotariu
4. **Dura and Skull Base Tumors** — Atul Goel
5. **Is the art of aneurysm surgery going extinct?** — Anil Nanda
6. **Cavernous Sinus Tumors: Advocating Surgical Evaluation Before Radiotherapy in Selected Patients** — Ciobotaru Georgian

Session XVI — Functional Neurosurgery, Epilepsy & Neurophysiology

1. **Gliomas Are “Confined” Tumors – Clinical Relevance** — Atul Goel
2. **White Matter Quantitative Anomalies and Clinical Outcome in Drug-Resistant Epilepsies** — Edwin Humberto Hodelin Maynard
3. **Integrating Extended Reality (XR) into Neurosurgical Practice** — George Petrescu
4. **Multimodal Intraoperative Monitoring of Visual Function in Intracranial Tumor Surgery** — Claudiu Matei
5. **Mapping Brn3b Cell Populations of the Superior Colliculus and Periaqueductal Gray** — Edwin Humberto Hodelin Maynard
6. **Multimodal Functional Brain Mapping in Neurosurgery: CortiQ™ High-Gamma Mapping and Cortico-Cortical Evoked Potentials** — Marian-Silviu Poboroniuc

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Session XVII — Complex Cerebrovascular Lesions – Surgical and Endovascular Management

1. **Cranial and Spinal Dural Arterio-Venous Fistulas – Neurosurgical Treatment** — Gábor Nagy
2. **Cranial and Spinal Dural Arterio-Venous Fistulas – Diagnosis and Endovascular Management** — Cristina Aldea
3. **Vascular Eagle Syndrome and Carotid Artery Dissection: Identifying a Mechanically Vulnerable Carotid Phenotype** — Mircea Vicentiu Saceleanu
4. **When Clipping Gets Difficult: Surgery of Multiple Cerebral Aneurysms** — Mugurel Petrinel Radoi
5. **Beyond the Bone: Modern Cranioplasty and Its Impact on Neurological Recovery** — Mircea Vicentiu Saceleanu

Session XVIII — Beyond the Borders of Neurosurgery

1. **Brâncuși's écorché at 150 years from his birth: neuroanatomical perspectives on a masterpiece of art and anatomy** — Alexandru Vlad Ciurea
2. **Charting the Glioblastoma Atlas: Integrating Proteomics, Liquid Biopsy, and Functional Drug Testing within the PerCareGliO Project** — Felix Mircea Brehar
3. **The glymphatic system: a holistic approach to brain homeostasis, neurodegeneration, and neurosurgical implications** — Alexandru Vlad Ciurea
4. **Surgical and anatomical particularities of anterior fossa meningiomas: a case series** — Corneliu Toader
5. **Role of Endoscopy in Microsurgery of Cerebellopontine Angle Lesions** — Manas Panigrahi

Session XIX — Young Corner I

1. **Intraoperative Correlation of Anatomical Landmarks Using Neuronavigation and Robotic Systems in Neurosurgery** — Prodan Alexandru
2. **Translamina Terminalis Resection of a Giant Sellar-Suprasellar Craniopharyngioma with Third Ventricle Extension: A Case Report** — Nadjia Emily Pop
3. **Beyond Clinical Appearances: Diagnostic Pitfalls and Microsurgical Management of an Atypical Cerebellopontine Angle Lesion** — Teleanu Dan-Constantin
4. **Petroclival Meningiomas via the Retrosigmoid Approach: A Retrospective Single Center Review** — Matei Baltac

Session XX — Young Corner II

1. **Single-Stage Surgery for Surgical Clipping of Right M1 and Large MCA Aneurysms and Anterior Clinoidal Meningioma** — Pirogan Nae Diana
2. **Anatomical and Hemodynamic Characteristics of Aneurysms Associated with the Fetal-Type Posterior Communicating Artery** — Butnariu Andreea-Daniela
3. **Surgical Management of a Giant Middle Cerebral Artery Aneurysm: Case Report and Postoperative Considerations** — Valentina-Simina Uțiu
4. **Multimodal Treatment of a Ruptured Pediatric Dissecting M2 Middle Cerebral Artery Pseudoaneurysm with Massive Hemorrhagic Presentation: A Case Report** — Ane-Marie Mironescu

Session XXI — Young Corner III

1. **Recurrent Symptoms in a Petroclival Meningioma after Gamma Knife Radiosurgery – A Case Report** — Andreea-Maria Incicău
2. **A Rare Pediatric Non-Galenic Pial Arteriovenous Fistula: Particularities of Endovascular Treatment** — Ana Isabela Dobrin
3. **When MCA Aneurysms Mimic Hemorrhagic Stroke: A Case Series on Diagnosis and Management** — Erwin Alexandru Petrescu
4. **Cognitive Rehabilitation After Hemorrhagic Stroke: A Feuerstein-Based Approach** — Antonia Alexandra Iliescu

Session XXII — Young Corner IV

1. **Beyond Survival: Staged Multidisciplinary Management and Reconstruction of Severe Fronto-Basal Skull Base Trauma** — Catherine-Teodora Costan
2. **Penetrating Craniocerebral Injury from a Rubber Bullet with Transtentorial Herniation and Early Retrograde Migration: A Case Report** — Adrian Ichim
3. **From Clinical Symptoms to Surgical Diagnosis: A Complex Spinal Cord Case** — Valentina-Simina Uțiu
4. **Intramedullary Cervical Aspergillosis in an Immunocompetent Patient: A Rare Cause of Progressive Myelopathy** — Anastasia-Parascheva Sandu

XXX^{ème} COURS FRANCOPHONE ROUMAIN

16 Septembre 2026

Sous l'égide de la Société de Neurochirurgie de Langue Française

Prise en charge des adénomes à prolactine

D. Rotariu

La charniere craniovertébrale chez l'enfant achondroplase: ce qu'un neurochirurgien doit savoir?

F. Di Rocco

Ependymomes de la fosse postérieure chez l'enfant

C. Mottolese

Craniopharyngiomes de l'enfant

C. Mottolese

TLIF mini-invasif avec navigation en réalité augmentée: how I do it

C. Raftopoulos

La nanotechnologie en neurochirurgie et en chirurgie du rachis: science-fiction ou réalité?

B. Costachescu

L'hydrocephalie antenatale

O. Klein

Les gliomes du nerf optique

O. Klein

Table Ronde Neuro-Vasculaire

Moderateur Christian Raftopoulos

Principes et techniques de la chirurgie des anévrismes

F. Charbel

Pontage intra-extracranien principes hemodynamiques et applications pratiques

F. Charbel

Le traitement moderne des anévrismes cérébraux: du clipping aux coils, jusqu'à l'intelligence artificielle – une expérience intégrée neurochirurgicale et neuroendovasculaire

N. Dobrin

