



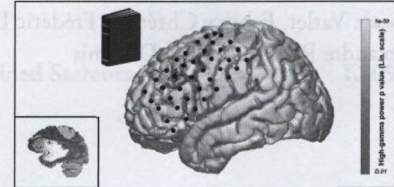
## SURGICAL MANAGEMENT OF ELOQUENT AREA TUMORS

539

### EDITOR'S CHOICE

#### Central Nervous System Plasticity Influences Language and Cognitive Recovery in Adult Glioma

Saritha Krishna, Sofia Kakaizada, Nyle Almeida, David Brang, Shawn Hervey-Jumper



## RESEARCH—HUMAN—CLINICAL STUDIES

#### Correlation Between Trans-Stenotic Blood Flow Velocity Differences and the Cerebral Venous Pressure Gradient in Transverse Sinus Stenosis: A Prospective 4-Dimensional Flow Magnetic Resonance Imaging Study

Heyu Ding, Pengfei Zhao, Han Lv, Xiaoshuai Li, Xiaoyu Qiu, Rong Zeng, Guopeng Wang, Zhenghan Yang, Shusheng Gong, Long Jin, Zhenchang Wang

#### Microvascular Decompression for Trigeminal Neuralgia: A Prospective, Multicenter Study

Yoshifumi Mizobuchi, Shinji Nagahiro, Akinori Kondo, Kazunori Arita, Isao Date, Yukihiro Fujii, Takamitsu Fujimaki, Ryosuke Hanaya, Mitsuhiro Hasegawa, Toru Hatayama, Tooru Inoue, Hidetoshi Kasuya, Masahito Kobayashi, Eiji Kohmura, Toshio Matsushima, Jun Masuoka, Akio Morita, Shigeru Nishizawa, Yoshihiro Okayama, Taku Shigeno, Hiroshi Shimano, Hideo Takeshima, Iwao Yamakami



### On the Cover

Established on October 24, 1945, the United Nations succeeded the League of Nations as the international intergovernmental organization committed to maintaining world peace, protecting human rights, delivering humanitarian aid, promoting sustainable development, and upholding international law. In 1947, the General Assembly resolution 167 (II) approved the now iconic light blue for the United Nations flag. This distinctive color has come to represent the UN. The recognizable blue helmet is worn by UN peacekeepers at hot spots and conflict zones all over the globe, keeping enemies apart and maintaining ceasefires. The associated laurel wreath and olive branch have been peace symbols since antiquity. Image © PIRON 2 INTERACTIVE LLC, used with permission.

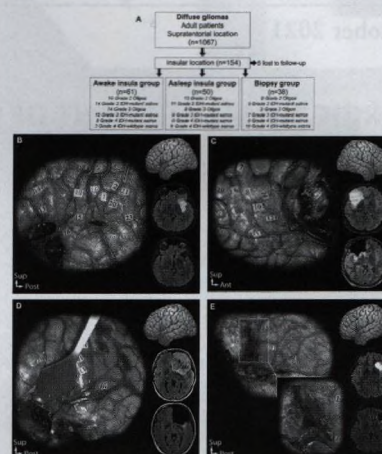


Print Readers: Scan this QR code using your mobile device in order to access the online Table of Contents.



### Surgery of Insular Diffuse Gliomas—Part 1: Transcortical Awake Resection Is Safe and Independently Improves Overall Survival

Johan Pallud, Marc Zanella, Alessandro Moiraghi, Sophie Peeters, Bénédicte Trancart, Myriam Edjlali, Catherine Oppenheim, Pascale Varlet, Fabrice Chrétien, Frédéric Dhermain, Alexandre Roux, Edouard Dezamis



### Surgery of Insular Diffuse Gliomas—Part 2: Probabilistic Cortico-Subcortical Atlas of Critical Eloquent Brain Structures and Probabilistic Resection Map During Transcortical Awake Resection

Johan Pallud, Alexandre Roux, Bénédicte Trancart, Sophie Peeters, Alessandro Moiraghi, Myriam Edjlali, Catherine Oppenheim, Pascale Varlet, Fabrice Chrétien, Frédéric Dhermain, Marc Zanella, Edouard Dezamis

### External Validation and Modification of Nationwide Inpatient Sample Subarachnoid Hemorrhage Severity Score 591

Sapna Rawal, Gabriel J. E. Rinkel, Jiming Fang, Chad W. Washington, R. Loch Macdonald, J. Charles Victor, Timo Krings, Moira K. Kapral, Andreas Laupacis

### Long-Term Outcome of Spinal Cord Stimulation in Complex Regional Pain Syndrome 597

Tomas Hoikkaenen, Mette Nissen, Tiina-Mari Ikäheimo, Henna-Kaisa Jyrkkänen, Jukka Huttunen, Mikael von und zu Fraunberg

### Thermal Neuromodulation With Focused Ultrasound: Implications for the Technique of Subthreshold Testing 610

Francesco Sammartino, John Snell, Matthew Eames, Vibhor Krishna

### Poor Fusion Rates Following Cervical Corpectomy Reconstructed With an Expandable Cage: Minimum 2-Year Radiographic and Clinical Outcomes 617

Vadim A. Byvaltsev, Andrei A. Kalinin, Marat A. Aliyev, Nurzhan O. Azhibekov, Valerii V. Shepelev, K. Daniel Riew

### Gabapentinoids Associated With Lower Explantation Rate in 203 Patients With Spinal Cord Stimulation for Failed Back Surgery Syndrome 626

Mette Nissen, Tiina-Mari Ikäheimo, Jukka Huttunen, Ville Leinonen, Henna-Kaisa Jyrkkänen, Mikael von und zu Fraunberg



**Feasibility and Morbidity of Magnetic Resonance Imaging-Guided Stereotactic Laser Ablation of Deep Cerebral Cavernous Malformations: A Report of 4 Cases** 635  
 James G. Malcolm, J. Miller Douglas, Alex Greven, Christopher Rich, Reem A. Dawoud, Ranliang Hu, Andrew Reisner, Daniel L. Barrow, Robert E. Gross, Jon T. Willie

**COMMENTARIES (ONLINE ONLY)**

**Commentary: Feasibility and Morbidity of Magnetic Resonance Imaging-Guided Stereotactic Laser Ablation of Deep Cerebral Cavernous Malformations: A Report of 4 Cases** E207  
 Issam A. Awad

**Commentary: Feasibility and Morbidity of Magnetic Resonance Imaging-Guided Stereotactic Laser Ablation of Deep Cerebral Cavernous Malformations: A Report of 4 Cases** E209  
 Stephanie M. Robert, Veronica L. Chiang

**Commentary: Feasibility and Morbidity of Magnetic Resonance Imaging-Guided Stereotactic Laser Ablation of Deep Cerebral Cavernous Malformations: A Report of 4 Cases** E211  
 Jeffrey I. T aylor, Bradley Lega

**RESEARCH—HUMAN—CLINICAL STUDIES**

**Clinical and Angioarchitectural Features of Hemorrhagic Brain Arteriovenous Malformations in Adults and Children: Contrasts and Implications on Outcome** 645  
 Ayman M. Qureshi, Prakash Muthusami, Timo Krings, Afsaneh Amirabadi, Ivan Radovanovic, Peter Dirks, Manohar Shroff, Derek Armstrong, Karel terBrugge, Vitor M. Pereira

**Early Outcomes After Carotid Endarterectomy and Carotid Artery Stenting: A Propensity-Matched Cohort Analysis** 653  
 Rahul A. Sastry, Nathan J. Pertsch, Emilija Sagaityte, Jonathan A. Poggi, Steven A. Toms, Robert J. Weil

**Aneurysm Wall Enhancement Is Associated With Decreased Intracellular IL-10 and Morphological Features of Instability** 664  
 Vanessa M. Swiatek, Belal Neyazi, Jorge A. Roa, Mario Zanaty, Edgar A. Samaniego, Daizo Ishii, Yongjun Lu, I. Erol Sandalcioğlu, Sylvia Saalfeld, Philipp Berg, David M. Hasan

**COMMENTARIES (ONLINE ONLY)**

**Commentary: Aneurysm Wall Enhancement Is Associated With Decreased Intracellular IL-10 and Morphological Features of Instability** E213  
 Anthony Larson, Waleed Brinjikji

**Commentary: Aneurysm Wall Enhancement Is Associated With Decreased Intracellular IL-10 and Morphological Features of Instability** E215  
 Tyler Scullen, Mansour Mathkour, Nikhil Teja, Aaron S. Dumont

**RESEARCH—HUMAN—CLINICAL STUDIES**

**Effect of Prior Embolization on Outcomes After Stereotactic Radiosurgery for Pediatric Brain Arteriovenous Malformations: An International Multicenter Study** 672  
 Rebecca M. Burke, Ching-Jen Chen, Dale Ding, Thomas J. Buell, Jennifer Sokolowski, Kimball A. Sheehan, Cheng-Chia Lee, Darrah E. Sheehan, Hideyuki Kano, Kathryn N. Kearns, Shih-Wei Tzeng, Huai-che Yang, Paul P. Huang, Douglas Kondziolka, Natasha Ironside, David Mathieu, Christian Iorio-Morin, Inga S. Grills, Caleb Feliciano, Gene Barnett, Robert M. Starke, L. Dade Lunsford, Jason P. Sheehan, on behalf of the International Radiosurgery Research Foundation



**Does Variceal Drainage Affect Arteriovenous Malformation Obliteration and Hemorrhage Rates After Stereotactic Radiosurgery? A Case-Matched Analysis** 680

Andrew Faramand, Nima Alan, Hideuyki Kano, Ajay Niranjana, Nitin Agarwal, Alp Ozpinar, John Flickinger, L. Dade Lunsford

**COMMENTARIES (ONLINE ONLY)**

**Commentary: Does Variceal Drainage Affect Arteriovenous Malformation Obliteration and Hemorrhage Rates After Stereotactic Radiosurgery? A Case-Matched Analysis** E218

Douglas Kondziolka

**Commentary: Does Variceal Drainage Affect Arteriovenous Malformation Obliteration and Hemorrhage Rates After Stereotactic Radiosurgery? A Case-Matched Analysis** E219

Matthew J. Koch, Richard Bram, Sepideh Amin-Hanjani

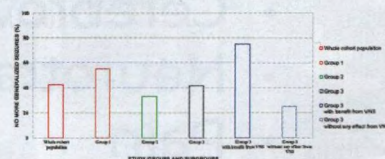
**RESEARCH—HUMAN—CLINICAL STUDIES**

**686**

**EDITOR'S CHOICE**

**Anterior Nucleus of the Thalamus Deep Brain Stimulation with Concomitant Vagus Nerve Stimulation for Drug-Resistant Epilepsy**

Veronica Parisi, Brian Nils Lundstrom, Panagiotis Kerezoudis, Juan Luis Alcalá Zermeno, Gregory A. Worrell, Jamie J. Van Gompel

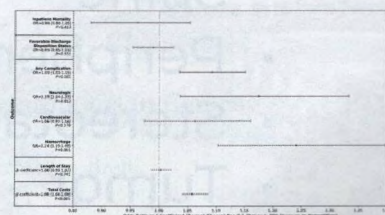


**695**

**EDITOR'S CHOICE**

**The Impact of Interhospital Competition on Treatment Strategy and Outcomes for Unruptured Intracranial Aneurysms**

Oliver Y. Tang, James S. Yoon, Wesley M. Durand, Shaan A. Ahmed, Michael T. Lawton



**Surgery for Degenerative Cervical Myelopathy: A Nationwide Registry-Based Observational Study With Patient-Reported Outcomes** 704

Sasha Gulati, Vetle Vangen-Lønne, Øystein P. Nygaard, Agnete M. Gulati, Tommy A. Hammer, Tonje O. Johansen, Wilco C. Peul, Øyvind O. Salvesen, Tore K. Solberg

**COMMENTARY (ONLINE ONLY)**

**Commentary: Surgery for Degenerative Cervical Myelopathy: A Nationwide Registry-Based Observational Study With Patient-Reported Outcomes** E221

Timothy Y. Wang, Khoi D. Than



## RESEARCH—HUMAN—CLINICAL STUDIES

### **A Crowdsourced Consensus on Supratotal Resection Versus Gross Total Resection for Anatomically Distinct Primary Glioblastoma** 712

Adham M. Khalafallah, Maureen Rakovec, Chetan Bettegowda, Christopher M. Jackson, Gary L. Gallia, Jon D. Weingart, Michael Lim, Yoshua Esquenazi, Brad E. Zacharia, Ezequiel Goldschmidt, Mateo Ziu, Michael E. Ivan, Andrew S. Venteicher, Edjah K. Nduom, Adam N. Mamelak, Ray M. Chu, John S. Yu, Jason P. Sheehan, Brian V. Nahed, Bob S. Carter, Mitchel S. Berger, Raymond Sawaya, Debraj Mukherjee

## RESEARCH—HUMAN—STUDY PROTOCOLS

### **Study Protocol on Defining Core Outcomes and Data Elements in Chronic Subdural Haematoma** 720

Dana C. Holl, Aswin Chari, Christian Iorio-Morin, Ruben Dammers, Niels A. van der Gaag, Angelos G. Kolias, Peter J. Hutchinson, Ellie Edlmann, on behalf of the CODE-CSDH Advisory Group

## LEGACY—INSTITUTIONS AND PEOPLE (ONLINE ONLY)

### **First Female Neurosurgeon in the United States: Dorothy Klenke Nash, MD** E223

Stephanie M. Casillo, Anisha Venkatesh, Nallammai Muthiah, Michael M. McDowell, Nitin Agarwal

### **Evandro Pinto da Luz de Oliveira, MD, PhD (November 8, 1945–February 11, 2021):** E229

#### **A Giant of Microneurosurgery and Neuroanatomy**

Hung Tzu Wen, Toshio Matsushima, Jacques J. Morcos, on behalf of the Rhoton Society

## CORRESPONDENCE (ONLINE ONLY)

### **Commentary: Time-Out and Its Role in Neurosurgery** E233

Hani Chanbour, Scott L. Zuckerman

### **Commentary: The Importance of Increased Funding Opportunities to Empower Global Neurosurgeons From Low-Middle Income Countries** E235

Myron L. Rolle, Deen L. Garba, Vanessa B. Kerry, Brian V. Nahed

### **Commentary: “Zooming in” on Glioblastoma: Understanding Tumor Heterogeneity and Its Clinical Implications in the Era of Single-Cell Ribonucleic Acid Sequencing** E237

Alfredo Lucas, James H. Eberwine, Stephen J. Bagley, Yi Fan, MacLean Nasrallah, Steven Brem

### **Letter: Incidence, Characteristics, and Outcomes of Large Vessel Stroke in COVID-19 Cohort: An International Multicenter Study** E239

Sandra Marcela Mass-Ramirez, Ivan David Lozada-Martínez, Amit Agrawal, Luis Rafael Moscote-Salazar, Yelson Alejandro Picón-Jaimes, William Florez-Perdomo, Rakesh Mishra

### **In Reply: Incidence, Characteristics, and Outcomes of Large Vessel Stroke in COVID-19 Cohort: An International Multicenter Study** E241

Priyank Khandelwal, Adam A. Dmytriw, Dileep R. Yavagal

### **Letter: Contemporary Analysis of Minimal Clinically Important Difference in the Neurosurgical Literature** E242

Raphia Rahman, Sabrina Rahman, Hira Ghani, Md Moshir Rahman



**In Reply: Contemporary Analysis of Minimal Clinically Important Difference in the Neurosurgical Literature** E244

Thomas M. Zervos, Karam Asmaro, Ellen L. Air

**Letter: Intracerebral Hemorrhage Volume Reduction and Timing of Intervention Versus Functional Benefit and Survival in the MISTIE III and STICH Trials** E245

Nathan Beucler

**In Reply: Intracerebral Hemorrhage Volume Reduction and Timing of Intervention Versus Functional Benefit and Survival in the MISTIE III and STICH Trials** E247

Sean P. Polster, Issam A. Awad

**Letter: Is the Stupp Protocol an Expensive and Unsustainable Standard of Care for Glioblastoma in Low- and Middle-Income Country Settings? A Call to Action!** E249

Gideon Adegboyega, Ahmad Ozair, Ulrick Sidney Kanmounye, Soham Bandyopadhyay, Babar Vaqas, on behalf of InciSion UK Collaborative

**Letter: Presurgical Identification of Patients With Glioblastoma at Risk for Cognitive Impairment at 3-Month Follow-up** E252

Giuseppe Maria Della Pepa, Grazia Menna, Davide Quaranta

**Letter: A Novel Neurosurgery Virtual Interest Group for Disadvantaged Medical Students: Lessons Learned for the Postpandemic Era** E253

Michael W. Kortz, Edwin McCray, Kevin O. Lillehei, Anthony M. DiGiorgio

**In Reply: A Retrospective Analysis in 1347 Patients Undergoing Cement Augmentation for Osteoporotic Vertebral Compression Fracture: Is the Sandwich Vertebra at a Higher Risk of Further Fracture?** E255

Jin Liu, Jing Tang

**Letter: Postmarket American Experience With Woven EndoBridge Device: Adjudicated Multicenter Case Series** E257

Jacob Cherian, Peter Kan

**Letter: Lessons Learned After 760 Neurointerventions via the Upper Extremity Vasculature: Pearls and Pitfalls** E259

Yoshiki Hanaoka, Jun-ichi Koyama, Toshihiro Ogiwara, Tetsuyoshi Horiuchi

**In Reply: Lessons Learned After 760 Neurointerventions via the Upper Extremity Vasculature: Pearls and Pitfalls** E261

Ahmad Sweid, Kareem El Naamani, Rawad Abbas, Pascal Jabbour

**CORRIGENDUM** 726

## DEPARTMENTS

Calendar of Events N10

Next Month in *Neurosurgery* N11