

Neurosurgery 20/20: Visual Abstracts—Concise, Clear Content
Guest Editors: Enhanced Abstract Panel: Brandon George Smith,
Oliver Burton, Stasa Tumpa, Luis Alberto Domitrovic Zalocar

Neurosurgery 20/20: Visual Abstracts—Concise, Clear Content S1
Nelson M. Oyesiku

**Converting Pediatric Patients and Young Adults From a Shunt to a Third Ventriculostomy:
A Multicenter Evaluation** S2
David S. Hersh, Pooja Dave, Matt Weeks, Todd C. Hankinson, Brandon Karimian, Susan Staulcup,
Mark D. Van Poppel, Scott D. Wait, Brandy N. Vaughn, Paul Klimo

**Aneurysm Treatment With Woven EndoBridge in the Cumulative Population of 3 Prospective,
Multicenter Series: 2-Year Follow-Up** S3
Laurent Pierot, Jacques Moret, Xavier Barreau, Istvan Szikora, Denis Herbreteau, Francis Turjman,
Markus Holtmannspötter, Anne-Christine Januel, Vincent Costalat, Jens Fiehler, Joachim Klisch,
Jean-Yves Gauvrit, Werner Weber, Hubert Desal, Stéphane Velasco, Thomas Liebig, Luc Stockx,
Joachim Berkefeld, Andrew Molyneux, James V. Byrne, Laurent Spelle

Radiosurgery for Unruptured Intervention-Naïve Pediatric Brain Arteriovenous Malformations S4
Ching-Jen Chen, Cheng-Chia Lee, Hideyuki Kano, Kathryn N. Kearns, Dale Ding, Shih-Wei Tzeng,
Ahmet Fatih Atik, Krishna Joshi, Paul P. Huang, Douglas Kondziolka, Natasha Ironside, David Mathieu,
Christian Iorio-Morin, Inga S. Grills, Thomas J. Quinn, Zaid A. Siddiqui, Kim Marvin, Caleb Feliciano,
Robert M. Starke, Andrew Faramand, Gene Barnett, L. Dade Lunsford, Jason P. Sheehan, on behalf of the
International Radiosurgery Research Foundation

Is Youth Football Safe? An Analysis of Youth Football Head Impact Data S5
Robert F. Heary, Neil Majmundar, Roxanne Nagurka

**Reconstructive vs Deconstructive Endovascular Approach to Intradural Vertebral Artery Aneurysms:
A Multicenter Cohort Study** S6
Ashish Kumar, Adam A. Dmytriw, Mohamed M. Salem, Anna L. Kuhn, Kevin Phan, Aditya Bharatha,
Julian Spears, Ajith Thomas, Ajit Puri, Thomas R. Marotta



On the Cover
Cover art, © 2020 Bona Kim. Used with permission.



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

- Predicting Long-Term Outcomes After Poor-Grade Aneurysmal Subarachnoid Hemorrhage Using Decision Tree Modeling** S7
Jinjin Liu, Ye Xiong, Ming Zhong, Yunjun Yang, Xianzhong Guo, Xianxi Tan, Bing Zhao
- Sensitivity and Specificity of On-Field Visible Signs of Concussion in the National Football League** S8
Robert J. Elbin, Scott L. Zuckerman, Allen K. Sills, Jeff R. Crandall, David J. Lessley, Gary S. Solomon
- The Impact of Insulin-Like Growth Factor Index and Biologically Effective Dose on Outcomes After Stereotactic Radiosurgery for Acromegaly: Cohort Study** S9
Christopher S. Graffeo, Diane Donegan, Dana Erickson, Paul D. Brown, Avital Perry, Michael J. Link, William F. Young, Bruce E. Pollock
- Percutaneous Trigeminal Stimulation for Intractable Facial Pain: A Case Series** S10
Pavlos Texakalidis, Muhibullah S. Tora, J. Tanner McMahon, Alexander Greven, Casey L. Anthony, Purva Nagarajan, Melissa Campbell, Nicholas M. Boulis
- Concussion Symptom Characteristics and Resolution in 20 United States High School Sports, 2013/14–2017/18 Academic Years** S11
Avinash Chandran, Zachary Y. Kerr, Patricia R. Roby, Aliza K. Nedimyer, Alan Arakkal, Lauren A. Pierpoint, Scott L. Zuckerman
- Comparison of Low-Profiled Visualized Intraluminal Support Stent-Assisted Coiling and Coiling Only for Acutely Ruptured Intracranial Aneurysms: Safety and Efficacy Based on a Propensity Score-Matched Cohort Study** S12
Gaici Xue, Qiao Zuo, Haishuang Tang, Xiaoxi Zhang, Guoli Duan, Zhengzhe Feng, Qiang Li, Pengfei Yang, Yibin Fang, Kaijun Zhao, Dongwei Dai, Yi Xu, Bo Hong, Qinghai Huang, Rui Zhao, Jianmin Liu
- Patient-Controlled Analgesia Following Lumbar Spinal Fusion Surgery Is Associated With Increased Opioid Consumption and Opioid-Related Adverse Events** S13
Arpan A. Patel, Corey T. Walker, Virginia Prendergast, John J. Radosevich, Doneen Grimm, Jakub Godzik, Alexander C. Whiting, U. Kumar Kakarla, Zaman Mirzadeh, Juan S. Uribe, Jay D. Turner
- Deep Brain Stimulation in Epilepsy: A Role for Modulation of the Mammillothalamic Tract in Seizure Control?** S14
Frédéric L. W. V. J. Schaper, Birgit R. Plantinga, Albert J. Colon, G. Louis Wagner, Paul Boon, Nadia Blom, Erik D. Gommer, Govert Hoogland, Linda Ackermans, Rob P. W. Rouhl, Yasin Temel
- Early Multicenter Experience With the Neuroform Atlas Stent: Feasibility, Safety, and Efficacy** S15
Ahmad Sweid, Nabeel Herial, Kalyan Sajja, Nohra Chalouhi, Lohit Velagapudi, Allison Doermann, Adam Kardon, Stavropoula Tjoumakaris, Hekmat Zarzour, Michelle J. Smith, Hana Choe, Qaisar Shah, Larami Mackenzie, Osman Kozak, Robert H. Rosenwasser, Pascal Jabbour, M. Reid Gooch
- Laser Ablation of Abnormal Neurological Tissue Using Robotic NeuroBlate System (LAANTERN): 12-Month Outcomes and Quality of Life After Brain Tumor Ablation** S16
Albert H. Kim, Steven Tatter, Ganesh Rao, Sujit Prabhu, Clark Chen, Peter Fecci, Veronica Chiang, Kris Smith, Brian J. Williams, Alireza M. Mohammadi, Kevin Judy, Andrew Sloan, Zulma Tovar-Spinoza, James Baumgartner, Constantinos Hadjipanayis, Eric C. Leuthardt

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

Pipeline Embolization Device Versus Stent-Assisted Coiling for Intracranial Aneurysm Treatment: A Retrospective Propensity Score-Matched Study S17

Mohamed M. Salem, Krishnan Ravindran, Alejandro Enriquez-Marulanda, Luis C. Ascanio, Noah Jordan, Santiago Gomez-Paz, Paul M. Foreman, Christopher S. Ogilvy, Ajith J. Thomas, Justin M. Moore

Development and Validation of a Multivariate Prediction Model of Perioperative Mortality in Neurosurgery: The New Zealand Neurosurgical Risk Tool (NZRISK-NEURO) S18

Stephanie Clark, Luke Boyle, Phoebe Matthews, Patrick Schweder, Carolyn Deng, Doug Campbell

Anterior Column Realignment: Analysis of Neurological Risk and Radiographic Outcomes S19

Rajiv Saigal, Behrooz A. Akbarnia, Robert K. Eastlack, Ali Bagheri, Stacie Tran, Drew Brown, IV, Ramin Bagheri, Gregory M. Mundis

Role of Gamma Knife Radiosurgery in Small Cell Lung Cancer: A Multi-Institutional Retrospective Study of the International Radiosurgery Research Foundation (IRRF) S20

Christopher P. Cifarelli, John A. Vargo, Wei Fang, Roman Liscak, Khumar Guseynova, Ronald E. Warnick, Cheng-chia Lee, Huai-che Yang, Hamid Borghei-Razavi, Tonmoy Maiti, Zaid A. Siddiqui, Justin C. Yuan, Inga S. Grills, David Mathieu, Charles J. Touchette, Diogo Cordeiro, Veronica Chiang, Judith Hess, Christopher J. Tien, Andrew Faramand, Hideyuki Kano, Gene H. Barnett, Jason P. Sheehan, L. Dade Lunsford

Anterior Sensorimotor Subthalamic Nucleus Stimulation Is Associated With Improved Voice Function S21

Ahmed Jorge, Christina Dastolfo-Hromack, Witold J. Lipski, Ian H. Kratter, Libby J. Smith, Jackie L. Gartner-Schmidt, R. Mark Richardson

What Variables Correlate With Different Clinical Outcomes of Abusive Head Injury? S22

Sonia Ajmera, Mustafa Motiwala, Matt Weeks, Chesney S. Oravec, David S. Hersh, Brittany D. Fraser, Brandy Vaughn, Paul Klimo

The Utility of Intraoperative Lateral Spread Recording in Microvascular Decompression for Hemifacial Spasm: A Systematic Review and Meta-Analysis S23

Parthasarathy D. Thirumala, Ahmed M. Altibi, Robert Chang, Eyad E. Saca, Pragnya Iyengar, Rajiv Reddy, Katherine Anetakis, Donald J. Crammond, Jeffrey R. Balzer, Raymond F. Sekula

Sustained Long-Term Outcomes With Closed-Loop Spinal Cord Stimulation: 12-Month Results of the Prospective, Multicenter, Open-Label Avalon Study S24

Marc Russo, Charles Brooker, Michael J. Cousins, Nathan Taylor, Tillman Boesel, Richard Sullivan, Lewis Holford, Erin Hanson, Gerrit Eduard Gmel, Nastaran Hesam Shariati, Lawrence Poree, John Parker

Pipeline Embolization Device for Treatment of Extracranial Internal Carotid Artery Pseudoaneurysms: A Multicenter Evaluation of Safety and Efficacy S25

Oluwaseun O. Akinduro, Neethu Gopal, Tasneem F. Hasan, Emad Nourollah-Zadeh, Kunal Vakharia, Reade De Leacy, Jan-Karl Burkhardt, Junichi Yamamoto, J. Mocco, Leonardo Rangel Castilla, Peter Tze Man Kan, Alan Boulos, Elad Levy, Rabih G. Tawk

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Effect of Blood Pressure Variability During the Acute Period of Subarachnoid Hemorrhage on Functional Outcomes** S26
Luis C. Ascanio, Alejandro Enriquez-Marulanda, Georgios A. Maragos, Mohamed M. Salem, Abdulrahman Y. Alturki, Krishnan Ravindran, Corey R. Fehnel, Khalid Hanafy, Christopher S. Ogilvy, Ajith J. Thomas, Justin M. Moore
- Updated Return-to-Play Recommendations for Collision Athletes After Cervical Spine Injury: A Modified Delphi Consensus Study With the Cervical Spine Research Society** S27
Gregory D. Schroeder, Jose A. Canseco, Parthik D. Patel, Alan S. Hilibrand, Christopher K. Kepler, Srdjan M. Mirkovic, Robert G. Watkins, III, Andrew Dossett, Andrew C. Hecht, Alexander R. Vaccaro
- Predictive and Discriminative Power of Pressure Reactivity Indices in Traumatic Brain Injury** S28
Lennart Riemann, Erta Beqiri, Alexander Younsi, Marek Czosnyka, Peter Smielewski
- Children With Spinal Muscular Atrophy With Prior Growth-Friendly Spinal Implants Have Better Results After Definite Spinal Fusion in Comparison to Untreated Patients** S29
Anna K. Hell, Lena Braunschweig, Konstantinos Tsaknakis, Urs von Deimling, Katja A. Lüders, Marina Hecker, Heiko M. Lorenz
- Scoliosis Research Society-Schwab Grade 6 Osteotomy for Severe Congenital Angular Kyphoscoliosis: An Analysis of 17 Cases With a Minimum 2-Year Follow-up** S30
Bo Shi, Benlong Shi, Dun Liu, Yang Li, Sanqiang Xia, Xu Sun, Zhen Liu, Bangping Qian, Zezhang Zhu, Yong Qiu
- Diabetes Insipidus After Endoscopic Transsphenoidal Surgery** S31
William T. Burke, David J. Cote, David L. Penn, Sherry Iuliano, Katie McMillen, Edward R. Laws
- The Use of Alternative Routes for the Delivery of Intra-Arterial Chemotherapy for Retinoblastoma** S32
Ahmad Sweid, Batoul Hammoud, Pavlos Texakalidis, Vivian Xu, Kavya Shivashankar, Michael P. Baldassari, Somnath Das, Stavropoula Tjoumakaris, Carol L. Shields, David Ancona-Lezama, Li-Anne S. Lim, Lauren A. Dalvin, Dimitri J. Maamari, Pascal Jabbour
- Low-Grade Infection and Implant Failure Following Spinal Instrumentation: A Prospective Comparative Study** S33
Ehab Shiban, Ann-Kathrin Joerger, Insa Janssen, Mohammed Issa, Nicole Lange, Arthur Wagner, Susanne Feihl, Florian Ringel, Bernhard Meyer
- Optimizing Components of the Sport Concussion Assessment Tool for Acute Concussion Assessment** S34
Gian-Gabriel P. Garcia, Jing Yang, Mariel S. Lavieri, Thomas W. McAllister, Michael A. McCrea, Steven P. Broglio, on behalf of the CARE Consortium Investigators
- Crossing the Cervicothoracic Junction During Posterior Cervical Fusion for Myelopathy Is Associated With Superior Radiographic Parameters But Similar Clinical Outcomes** S35
Andrew K. Chan, Ryan K. Badiee, Joshua Rivera, Chih-Chang Chang, Leslie C. Robinson, Ratnesh N. Mehra, Lee A. Tan, Aaron J. Clark, Sanjay S. Dhall, Dean Chou, Praveen V. Mummaneni

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Tirofiban Protocol Protects Against Delayed Cerebral Ischemia: A Case-Series Study** S36
 Mario Zanaty, Carlos Osorno-Cruz, Stefano Byer, Jorge A. Roa, Kaustubh Limaye, Daizo Ishii, Daichi Nakagawa, James Torner, Lu Yongjun, Santiago Ortega-Gutiérrez, Edgar A Samaniego, Lauren Allan, David Hasan
- Thrombectomy Technique Predicts Outcome in Posterior Circulation Stroke—Insights from the STAR Collaboration** S37
 Ali M. Alawieh, Maya Eid, Mohammad Anadani, Mithun Sattur, Ilko L. Maier, Wuwei Feng, Nitin Goyal, Robert M. Starke, Ansaar Rai, Kyle M. Fargen, Marios-Nikos Psychogios, Reade De Leacy, Jonathan A. Grossberg, Salah G. Keyrouz, Travis M. Dumont, Peter Kan, Jonathan Lena, Jan Liman, Adam S. Arthur, Lucas Eljovich, David J. Mccarthy, Vasu Saini, Stacey Q. Wolfe, J. Mocco, Johanna T. Fifi, Fábio A. Nascimento, James A. Giles, Michelle Allen, Roberto Crosa, W. Christopher Fox, Benjamin Gory, Alejandro M. Spiotta, on behalf of Stroke Thrombectomy and Aneurysm Registry (STAR) Collaborators
- Drug-Coated Balloon Dilation Compared With Conventional Stenting Angioplasty for Intracranial Atherosclerotic Disease** S38
 Jun Zhang, Xiao Zhang, Jinping Zhang, Yun Song, Meimei Zheng, Lili Sun, Yao Meng, Wei Zhao, Hao Yin, Wei Wang, Ju Han
- Sarcopenia as a Prognostic Factor for 90-Day and Overall Mortality in Patients Undergoing Spine Surgery for Metastatic Tumors: A Multicenter Retrospective Cohort Study** S39
 Hesham Mostafa Zakaria, Brandon Michael Wilkinson, Zach Pennington, Yamaan S. Saadeh, Darryl Lau, Ankush Chandra, A. Karim Ahmed, Mohamed Macki, Sharath Kumar Anand, Mohamed A. Abouelleil, Jibrán A. Fateh, Jonathan W. Rick, Ramin A. Morshed, Hansen Deng, Kai-Yuan Chen, Adam Robin, Ian Y. Lee, Steven Kalkanis, Dean Chou, Paul Park, Daniel M. Sciubba, Victor Chang
- Impact of Dominant Symptom on 12-Month Patient-Reported Outcomes for Patients Undergoing Lumbar Spine Surgery** S40
 Clinton J. Devin, Anthony L. Asher, Kristin R. Archer, Anshit Goyal, Inamullah Khan, Panagiotis Kerezoudis, Mohammed Ali Alvi, Jacquelyn S. Pennings, Bernes Karacay, Christopher I. Shaffrey, Erica F. Bisson, John J. Knightly, Praveen V. Mummaneni, Kevin T. Foley, Mohamad Bydon
- Cranioplasty Reverses Dysfunction of the Solutes Distribution in the Brain Parenchyma After Decompressive Craniectomy** S41
 Alin Borha, Audrey Chagnot, Romain Goulay, Evelyne Emery, Denis Vivien, Thomas Gaberel
- Predictors of the Best Outcomes Following Minimally Invasive Surgery for Grade 1 Degenerative Lumbar Spondylolisthesis** S42
 Andrew K. Chan, Erica F. Bisson, Mohamad Bydon, Steven D. Glassman, Kevin T. Foley, Christopher I. Shaffrey, Eric A. Potts, Mark E. Shaffrey, Domagoj Coric, John J. Knightly, Paul Park, Michael Y. Wang, Kai-Ming Fu, Jonathan R. Slotkin, Anthony L. Asher, Michael S. Virk, Panagiotis Kerezoudis, Mohammed A. Alvi, Jian Guan, Regis W. Haid, Praveen V. Mummaneni
- Combined Unilateral Subthalamic Nucleus and Contralateral Globus Pallidus Interna Deep Brain Stimulation for Treatment of Parkinson Disease: A Pilot Study of Symptom-Tailored Stimulation** S43
 Chencheng Zhang, Linbin Wang, Wei Hu, Tao Wang, Yijie Zhao, Yixin Pan, Leonardo Almeida, Adolfo Ramirez-Zamora, Bomin Sun, Dianyou Li

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Comaneci-Assisted Coiling as a Treatment Option for Acutely Ruptured Wide Neck Cerebral Aneurysm: Case Series of 118 Patients** S44
Alexander Sirakov, Krasimir Minkin, Marin Penkov, Kristian Ninov, Vasil Karakostov, Stanimir Sirakov
- Relationship Between Preoperative Opioid Use and Postoperative Pain in Patients Undergoing Minimally Invasive Stand-Alone Lateral Lumbar Interbody Fusion** S45
Song Kim, Alp Ozpinar, Nitin Agarwal, Emily Hacker, Nima Alan, David O. Okonkwo, Adam S. Kanter, D. Kojo Hamilton
- Survival After Surgery for Renal Cell Carcinoma Metastatic to the Spine: Impact of Modern Systemic Therapies on Outcomes** S46
Ganesh M. Shankar, Laura A. Van Beaver, Bryan D. Choi, Muhamed Hadzipasic, Ahilan Sivaganesan, Aditya V. Karhade, Marco L. Ferrone, Mitchel B. Harris, Andrew J. Schoenfeld, Peter M. Sadow, Kevin Oh, Joseph H. Schwab, Philip J. Saylor, John H. Shin
- Women With First-Hand Tobacco Smoke Exposure Have a Higher Likelihood of Having an Unruptured Intracranial Aneurysm Than Nonsmokers: A Nested Case-Control Study** S47
Christopher S. Ogilvy, Santiago Gomez-Paz, Kimberly P. Kicielinski, Mohamed M. Salem, Georgios A. Maragkos, Michelle Lee, David Vergara-Garcia, Rafael Rojas, Justin M. Moore, Ajith J. Thomas
- Reoperation, Readmission, and Discharge Disposition for Patients With Degenerative Lumbar Pathology Treated With Either Open or Minimally Invasive Techniques: A Single-Center Retrospective Review of 1435 Cases** S48
Marcelle Altshuler, Kyle B. Mueller, Ashley MacConnell, Peter Wirth, Faheem A. Sandhu, Jean-Marc Voyadzis
- Conservative Management of Type II Odontoid Fractures in Older People: A Retrospective Observational Comparison of Osseous Union Versus Nonunion** S49
Suzanne McIlroy, Jordan Lam, Muhammad Faheem Khan, Asfand Baig Mirza, Jerry Ajayi Philip, Gordan Grahovac, David Bell
- The Effect of T1-Slope in Spinal Parameters After Cervical Disc Arthroplasty** S50
Yi-Hsuan Kuo, Chao-Hung Kuo, Hsuan-Kan Chang, Li-Yu Fay, Tsung-Hsi Tu, Chih-Chang Chang, Henrich Cheng, Ching-Lan Wu, Jiing-Feng Lirng, Jau-Ching Wu, Wen-Cheng Huang
- Long-Term Outcome of Surgical Management in Symptomatic Pediatric Vertebral Hemangiomas Presenting With Myelopathy** S51
Pankaj K. Singh, Sarat P. Chandra, Mohit Agrawal, Dattaraj Sawarkar, Rajender Kumar, Amandeep Kumar, Satish Verma, Shashank S. Kale
- Experience With the Pipeline Embolization Device for Posterior Circulations Aneurysms: A Multicenter Cohort Study** S52
Christoph J. Griessenauer, Alejandro Enriquez-Marulanda, Philipp Taussky, Arundhati Biswas, Ramesh Grandhi, Sissi Xiang, Tao Hong, Lorenzo Rinaldo, Giuseppe Lanzino, Waleed Brinjikji, Jan-Karl Burkhardt, Peter Kan, Mandeep Ghuman, Victor X. D. Yang, Karen Chen, Mohammad A. Aziz-Sultan, Mohammad Ghorbani, Clemens M. Schirmer, Oded Goren, Shamsheer S. Dalal, Monika Killer-Oberpfalzer, Erasmia Müller-Thies-Broussalis, Matthew J. Koch, Christopher J. Stapleton, Aman B. Patel, Paul M. Foreman, Marshall C. Cress, Robert A. Hirschl, Timo Krings, Hongqi Zhang, Adam A. Dmytriw

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Cigarette Smoking Is More Prevalent in Patients With Brain Arteriovenous Malformations Compared to General Population: A Cross-Sectional Population-Based Study** S53
Anni Pohjola, Joni V. Lindbohm, Elias Oulasvirta, Ahmad Hafez, Päivi Koroknay-Pál, Aki Laakso, Mika Niemelä
- Visual Field Defect Before and After Endovascular Treatment of Occipital Arteriovenous Malformations** S54
Stanislas Smajda, Gabriele Ciccio, Robert Fahed, Thomas Robert, Daniele Botta, Hocine Redjem, Jean-Philippe Desilles, Mikael Mazighi, Kevin Zuber, Simon Escalard, Humain Baharvahdat, Raphaël Blanc, Dorian Chauvet, Manon Philibert, Sylvie Chokron, Michel Piotin
- Clinical Course of Unilateral Moyamoya Disease** S55
Ephraim W. Church, Teresa E. Bell-Stephens, Mark G. Bigder, Santosh Gummidipundi, Summer S. Han, Gary K. Steinberg
- Epidural Oscillating Cardiac-Gated Intracranial Implant Modulates Cerebral Blood Flow** S56
Mark G. Luciano, Stephen M. Dombrowski, Serge El-Khoury, Jun Yang, Suraj Thyagaraj, Sara Qvarlander, Syed Khalid, Ian Suk, Amir Manbachi, Francis Loth
- Assessment of the Subarachnoid Hemorrhage International Trialists (SAHIT) Models for Dichotomized Long-Term Functional Outcome Prediction After Aneurysmal Subarachnoid Hemorrhage in a United Kingdom Multicenter Cohort Study** S57
Isabel C. Hostettler, Menelaos Pavlou, Gareth Ambler, Varinder S. Alg, Stephen Bonner, Daniel C. Walsh, Diederik Bulters, Neil Kitchen, Martin M. Brown, Joan Grieve, Henry Houlden, David J. Werring, on behalf of the Genetics and Observational Subarachnoid Haemorrhage (GOSH) Study investigators
- The Ki-67 Proliferation Index as a Marker of Time to Recurrence in Intracranial Meningioma** S58
Christian Mirian, Simon Skyrman, Jiri Bartek, Lasse Rehné Jensen, Lars Kihlström, Petter Förander, Abiel Orrego, Tiit Mathiesen
- Twisting: Incidence and Risk Factors of an Intraprocedural Challenge Associated With Pipeline Flow Diversion of Cerebral Aneurysms** S59
Matthew T. Bender, Robert W. Young, David A. Zarrin, Jessica K. Campos, Justin M. Caplan, Judy Huang, Rafael J. Tamargo, Li-Mei Lin, Geoffrey P. Colby, Alexander L. Coon
- Trajectories and Risk Factors for Pediatric Postconcussive Symptom Recovery** S60
Katie Truss, Stephen J. C. Hearps, Franz E. Babl, Michael Takagi, Gavin A. Davis, Cathriona Clarke, Nicholas Anderson, Vanessa C. Rausa, Silvia Bressan, Kevin Dunne, Vicki Anderson
- Endovascular Thrombectomy for Pediatric Acute Ischemic Stroke: A Multi-Institutional Experience of Technical and Clinical Outcomes** S61
Vijay M. Ravindra, Matthew Alexander, Philipp Taussky, Robert J. Bollo, Ameer E. Hassan, Jonathan P. Scoville, Julius Griauzde, Al-Wala Awad, Mouhammad Jumaa, Syed Zaidi, Jonathan J. Lee, Muhammad Ubaid Hafeez, Fábio A. Nascimento, Melissa A. LoPresti, William T. Couldwell, Steven W. Hetts, Sandi K. Lam, Peter Kan, Ramesh Grandhi

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Giant Fusiform and Dolichoectatic Aneurysms of the Basilar Trunk and Vertebrobasilar Junction—Clinicopathological and Surgical Outcome** S62
Hirofumi Nakatomi, Satoshi Kiyofuji, Hideaki Ono, Minoru Tanaka, Hiroyasu Kamiyama, Katsumi Takizawa, Hideaki Imai, Nobuhito Saito, Yoshiaki Shiokawa, Akio Morita, Kelly D. Flemming, Michael J. Link
- Validation and Optimization of Barrow Neurological Institute Score in Prediction of Adverse Events and Functional Outcome After Subarachnoid Hemorrhage—Creation of the HATCH (Hemorrhage, Age, Treatment, Clinical State, Hydrocephalus) Score** S63
Isabel Charlotte Hostettler, Martina Sebök, Gareth Ambler, Carl Muroi, Peter Prömmel, Marian Christoph Neidert, Johannes Konstantin Richter, Athina Pangalu, Luca Regli, Menno Robbert Germans
- Optical Coherent Tomography Predicts Long-Term Visual Outcome of Pituitary Adenoma Surgery: New Perspectives From a 5-Year Follow-up Study** S64
Young Soo Chung, Minkyun Na, Jihwan Yoo, Woohyun Kim, In-Ho Jung, Ju Hyung Moon, Junwon Lee, Sun Ho Kim, Eui Hyun Kim
- Forecasting Seizure Freedom After Epilepsy Surgery Assessing Concordance Between Noninvasive and StereoEEG Findings** S65
Reinaldo Uribe San Martin, Roberta Di Giacomo, Roberto Mai, Francesca Gozzo, Veronica Pelliccia, Valeria Mariani, Francesco Cardinale, Ethel Ciampi, Marco Onofri, Laura Tassi
- Improved Cerebral Arteriovenous Malformation Obliteration With 3-Dimensional Rotational Digital Subtraction Angiography for Radiosurgical Planning: A Retrospective Cohort Study** S66
Joshua L. Anderson, Mohamed H. Khattab, Alexander D. Sherry, Guozhen Luo, Rohan V. Chitale, Michael T. Froehler, Matthew R. Fusco, Anthony J. Cmepak, Albert Attia
- Neurosurgical Choice for Glossopharyngeal Neuralgia: A Benefit–Harm Assessment of Long-Term Quality of Life** S67
Tao Du, Bing Ni, Wei Shu, Yongsheng Hu, Hongwei Zhu, Yongjie Li
- Predicting Postoperative Outcomes in Brain Tumor Patients With a 5-Factor Modified Frailty Index** S68
Sakibul Huq, Adham M. Khalafallah, Adrian E. Jimenez, Abhishek Gami, Shrivika Lam, Miguel A. Ruiz-Cardozo, Leonardo A. P. Oliveira, Debraj Mukherjee
- Long-Term Disease Burden and Survivorship Issues After Surgery and Radiotherapy of Intracranial Meningioma Patients** S69
Amir H. Zamanipour Najafabadi, Pim B. van der Meer, Florian W. Boele, Martin J. B. Taphoorn, Martin Klein, Saskia M. Peerdeman, Wouter R. van Furth, Linda Dirven, Dutch Meningioma Consortium
- Clinical Outcome of “Asleep” Deep Brain Stimulation for Parkinson Disease Using Robot-Assisted Delivery and Anatomic Targeting of the Subthalamic Nucleus: A Series of 152 Patients** S70
Catherine H. Moran, Mariusz Pietrzyk, Nagaraja Sarangmat, Carter S. Gerard, Neil Barua, Reiko Ashida, Alan Whone, Konrad Szewczyk-Krolukowski, Lucy Mooney, Steven S. Gill

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Multilobar Epilepsy Surgery in Childhood and Adolescence: Predictors of Long-Term Seizure Freedom** S71
 Evangelos Kogias, Thomas Bast, Susanne Schubert-Bast, Gert Wiegand, Armin Brandt, Dipl Biol, Karl Strobl, Rudolf Korinthenberg, Andreas Schulze-Bonhage, Josef Zentner, Georgia Ramantani
- Altered Motor Excitability in Patients With Diffuse Gliomas Involving Motor Eloquent Areas: The Impact of Tumor Grading** S72
 José Pedro Lavrador, Ifigeneia Gioti, Szymon Hoppe, Josephine Jung, Sabina Patel, Richard Gullan, Keyoumars Ashkan, Ranjeev Bhangoo, Francesco Vergani
- Impact of Spinal Cord Stimulation on Opioid Dose Reduction: A Nationwide Analysis** S73
 Syed M. Adil, Lefko T. Charalambous, Charis A. Spears, Musa Kiyani, Sarah E. Hodges, Zidanyue Yang, Hui-Jie Lee, Shervin Rahimpour, Beth Parente, Kathryn A. Greene, Mark McClellan, Shivanand P. Lad
- Using Histopathology to Assess the Reliability of Intraoperative Magnetic Resonance Imaging in Guiding Additional Brain Tumor Resection: A Multicenter Study** S74
 Amar S. Shah, Alexander T. Yahanda, Peter T. Sylvester, John Evans, Gavin P. Dunn, Randy L. Jensen, John Honeycutt, Daniel P. Cahill, Garnette R. Sutherland, Mark Oswood, Mitesh Shah, Steven R. Abram, Keith M. Rich, Joshua L. Dowling, Eric C. Leuthardt, Ralph G. Dacey, Albert H. Kim, Gregory J. Zipfel, David D. Limbrick, Matthew D. Smyth, Jeffrey Leonard, Michael R. Chicoine
- Syringomyelia Resolution Following Chiari Surgery: A Novel Scale for Communication and Research** S75
 Jacques Lara-Reyna, John Chae, Umberto Tosi, Mark M. Souweidane, Rafael Uribe-Cardenas, Jeffrey P. Greenfield
- The Effectiveness of Medical and Surgical Treatment for Children With Refractory Epilepsy** S76
 Iwen Pan, Melissa A. LoPresti, Dave F. Clarke, Sandi Lam
- Balloon Guide Catheter is Not Superior to Conventional Guide Catheter when Stent Retriever and Contact Aspiration are Combined for Stroke Treatment** S77
 Romain Bourcier, Gaultier Marnat, Julien Labreuche, Hubert Desal, Federico Di Maria, Arturo Consoli, François Eugène, Benjamin Gory, Cyril Dargazanli, Raphaël Blanc, Bertrand Lapergue, on behalf of the ETIS investigators
- Effect of Anatomic Segment Involvement on Stereotactic Radiosurgery for Facial Nerve Schwannomas: An International Multicenter Cohort Study** S78
 Gautam U. Mehta, Gregory P. Lekovic, William H. Slattery, Derald E. Brackmann, Hao Long, Hideyuki Kano, Douglas Kondziolka, Monica Mureb, Kenneth Bernstein, Anne-Marie Langlois, David Mathieu, Ahmed M. Nabeel, Wael A. Reda, Sameh R. Tawadros, Khaled Abdelkarim, Amr M. N. El-Shehaby, Reem M. Emad, Nasser Mohammed, Dusan Urgosik, Roman Liscak, Cheng-chia Lee, Huai-che Yang, Amanallah Montazeripouragha, Anthony M. Kaufmann, Krishna C. Joshi, Gene H. Barnett, Daniel M. Trifiletti, L. Dade Lunsford, Jason P. Sheehan
- Robot-Assisted Stereotaxy Reduces Target Error: A Meta-Analysis and Meta-Regression of 6056 Trajectories** S79
 Lucas R. Philipp, Caio M. Matias, Sara Thalheimer, Shyle H. Mehta, Ashwini Sharan, Chengyuan Wu

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

A Phase II and Pharmacodynamic Trial of RO4929097 for Patients With Recurrent/Progressive Glioblastoma S80

David M. Peereboom, Xiaobu Ye, Tom Mikkelsen, Glenn J. Lesser, Frank S. Lieberman, H. Ian Robins, Manmeet S. Ahluwalia, Andrew E. Sloan, Stuart A. Grossman

Survival, Dependency, and Health-Related Quality of Life in Patients With Ruptured Intracranial Aneurysm: 10-Year Follow-up of the United Kingdom Cohort of the International Subarachnoid Aneurysm Trial S81

Xinyang Hua, Alastair Gray, Jane Wolstenholme, Philip Clarke, Andrew J. Molyneux, Richard S. C. Kerr, Alison Clarke, Mary Sneade, Oliver Rivero-Arias

Middle Meningeal Artery Embolization for Chronic Subdural Hematoma: A Multi-Center Experience of 154 Consecutive Embolizations S82

Peter Kan, Georgios A. Maragkos, Aditya Srivatsan, Visish Srinivasan, Jeremiah Johnson, Jan-Karl Burkhardt, Timothy M. Robinson, Mohamed M. Salem, Stephen Chen, Howard A. Riina, Omar Tanweer, Elad I. Levy, Alejandro M. Spiotta, Sami Al Kasab, Jonathan Lena, Bradley A. Gross, Jacob Cherian, C. Michael Cawley, Brian M. Howard, Alexander A. Khalessi, Aditya S. Pandey, Andrew J. Ringer, Ricardo Hanel, Rafael A. Ortiz, David Langer, Cory M. Kelly, Brian T. Jankowitz, Christopher S. Ogilvy, Justin M. Moore, Michael R. Levitt, Mandy Binning, Ramesh Grandhi, Farhan Siddiq, Ajith J. Thomas

Mild and Severe Obesity Reduce the Effectiveness of Lumbar Fusions: 1-Year Patient-Reported Outcomes in 8171 Patients S83

Graham Mulvaney, Olivia M. Rice, Vincent Rossi, David Peters, Mark Smith, Joshua Patt, Deborah Pfortmiller, Anthony L. Asher, Paul Kim, Joe Bernard, Matthew McGirt

Enhanced Recovery After Surgery Reduces Postoperative Opioid Use and 90-Day Readmission Rates After Open Thoracolumbar Fusion for Adult Degenerative Deformity S84

Emmanuel A. Adeyemo, Salah G. Aoun, Umaru Barrie, Madelina L. Nguyen, Olatunde Badejo, Mark N. Pernik, Zachary Christian, Luke J. Dosselman, Tarek Y. El Ahmadih, Kristen Hall, Valery Peinado Reyes, David L. McDonagh, Carlos A. Bagley

The Role of Prophylactic Intraventricular Antibiotics in Reducing the Incidence of Infection and Revision Surgery in Pediatric Patients Undergoing Shunt Placement S85

Nikita Lakomkin, Constantinos G. Hadjipanayis

Prepontine Shunting for Pseudotumor Cerebri in Previously Failed Shunt Patients: A 5-Year Analysis S86

Ian White, Megan Tuohy, Michael Turner, Albert Lee

Stereotactic Radiosurgery With Versus Without Embolization for Brain Arteriovenous Malformations S87

Ching-Jen Chen, Dale Ding, Cheng-Chia Lee, Kathryn N. Kearns, I. Jonathan Pomeranic, Christopher P. Cifarelli, David E. Arsanious, Roman Liscak, Jaromir Hanuska, Brian J. Williams, Mehran B. Yusuf, Shiao Y. Woo, Natasha Ironside, Ronald E. Warnick, Daniel M. Trifiletti, David Mathieu, Monica Mureb, Carolina Benjamin, Douglas Kondziolka, Caleb E. Feliciano, Rafael Rodriguez-Mercado, Kevin M. Cockroft, Scott Simon, Heath B. Mackley, Samer Zammar, Neel T. Patel, Varun Padmanaban, Nathan Beatson, Anissa Saylany, John Lee, Jason P. Sheehan, on behalf of the International Radiosurgery Research Foundation

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Curve Characteristics and Response of Sciatic and Olisthesis Scoliosis Following L5/S1 Transforaminal Lumbar Interbody Fusion in Adolescent Lumbar Spondylolisthesis** S88
Chang-zhi Du, Ze-zhang Zhu, Yu Wang, Song Li, Liang Xu, Bin Wang, Yong Qiu, Xu Sun
- Occipital-Cervical Fusion and Ventral Decompression in the Surgical Management of Chiari-1 Malformation and Syringomyelia: Analysis of Data From the Park-Reeves Syringomyelia Research Consortium** S89
Travis S. CreveCoeur, Alexander T. Yahanda, Cormac O. Maher, Gabrielle W. Johnson, Laurie L. Ackerman, P. David Adelson, Raheel Ahmed, Gregory W. Albert, Phillip R. Aldana, Tord D. Alden, Richard C. E. Anderson, Lissa Baird, David F. Bauer, Karin S. Bierbrauer, Douglas L. Brockmeyer, Joshua J. Chern, Daniel E. Couture, David J. Daniels, Robert C. Dauser, Susan R. Durham, Richard G. Ellenbogen, Ramin Eskandari, Herbert E. Fuchs, Timothy M. George, Gerald A. Grant, Patrick C. Graupman, Stephanie Greene, Jeffrey P. Greenfield, Naina L. Gross, Daniel J. Guillaume, Gabe Haller, Todd C. Hankinson, Gregory G. Heuer, Mark Iantosca, Bermans J. Iskandar, Eric M. Jackson, Andrew H. Jea, James M. Johnston, Robert F. Keating, Michael P. Kelly, Nickalus Khan, Mark D. Krieger, Jeffrey R. Leonard, Francesco T. Mangano, Timothy B. Mapstone, J. Gordon McComb, Arnold H. Menezes, Michael Muhlbauer, W. Jerry Oakes, Greg Olavarria, Brent R. O'Neill, Tae Sung Park, John Ragheb, Nathan R. Selden, Manish N. Shah, Chevis Shannon, Joshua S. Shimony, Jodi Smith, Matthew D. Smyth, Scellig S. D. Stone, Jennifer M. Strahle, Mandeep S. Tamber, James C. Torner, Gerald F. Tuite, Scott D. Wait, John C. Wellons, III, William E. Whitehead, David D. Limbrick
- 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?** S90
Ping-Yeh Chiu, Fu-Cheng Kao, Ming-Kai Hsieh, Tsung-Ting Tsai, Wen-Jer Chen, Chi-Chien Niu, Po-Liang Lai
- Use of Functional MRI to Assess Effects of Deep Brain Stimulation Frequency Changes on Brain Activation in Parkinson Disease** S91
Marisa DiMarzio, Radhika Madhavan, Ileana Hancu, Eric Fiveland, Julia Prusik, Suresh Joel, Michael Gillogly, Ilknur Telkes, Michael D. Staudt, Jennifer Durphy, Damian Shin, Julie G. Pilitsis
- Long-Term Efficacy of Occipital Nerve Stimulation for Medically Intractable Cluster Headache** S92
Aurélie Leplus, Denys Fontaine, Anne Donnet, Jean Regis, Christian Lucas, Nadia Buisset, Serge Blond, Sylvie Raoul, Evelyne Guegan-Massardier, Stéphane Derrey, Bechir Jarraya, Bich Dang-Vu, Frederic Bourdain, Dominique Valade, Caroline Roos, Christelle Creach, Stéphan Chabardes, Pierric Giraud, Jimmy Voirin, Jocelyne Bloch, Sophie Colnat-Coulbois, François Caire, Philippe Rigoard, Laurie Tran, Coralie Cruzel, Michel Lantéri-Minet, French ONS registry group
- Focal Cortical Dysplasia IIIa in Hippocampal Sclerosis-Associated Epilepsy: Anatomico-Electro-Clinical Profile and Surgical Results From a Multicentric Retrospective Study** S93
Massimo Cossu, Piergiorgio d'Orio, Carmen Barba, Sofia Asioli, Francesco Cardinale, Sara Casciato, Massimo Caulo, Gabriella Colicchio, Alessandro Consales, Alfredo D'Aniello, Alessandro De Benedictis, Luca De Palma, Giuseppe Didato, Giancarlo Di Gennaro, Roberta Di Giacomo, Vincenzo Esposito, Renzo Guerrini, Michele Nichelatti, Martina Revay, Michele Rizzi, Giampaolo Vatti, Flavio Villani, Nelia Zamponi, Laura Tassi, Carlo Efisio Marras
- Familial Predisposition and Differences in Radiographic Patterns in Spontaneous Nonaneurysmal Subarachnoid Hemorrhage** S94
Pui Man Rosalind Lai, Isaac Ng, William B. Gormley, Nirav J. Patel, Kai U. Frerichs, M. Ali Aziz-Sultan, Rose Du

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- The Effect of Perioperative Adverse Events on Long-Term Patient-Reported Outcomes After Lumbar Spine Surgery** S95
Oliver G. S. Ayling, Tamir Ailon, John T. Street, Nicolas Dea, Greg McIntosh, Edward Abraham, W. Bradley Jacobs, Alex Soroceanu, Michael G. Johnson, Jerome Paquet, Parham Rasoulinejad, Phillippe Phan, Albert Yee, Sean Christie, Andrew Nataraj, R. Andrew Glennie, Hamilton Hall, Neil Manson, Y. Raja Rampersaud, Kenneth Thomas, Charles G. Fisher
- External Validation of the Timed Up and Go Test as Measure of Objective Functional Impairment in Patients With Lumbar Degenerative Disc Disease** S96
Martin N. Stienen, Nicolai Maldaner, Marketa Sosnova, Anna M. Zeitlberger, Michal Ziga, Astrid Weyerbrock, Oliver Bozinov, Oliver P. Gautschi
- Longitudinal Changes After Amygdala Surgery for Intractable Aggressive Behavior: Clinical, Imaging Genetics, and Deformation-Based Morphometry Study—A Case Series** S97
Flavia Venetucci Gouveia, Jürgen Germann, Rosa de Moraes, Erich Talamoni Fonoff, Clement Hamani, Eduardo Joaquim Alho, Helena Brentani, Ana Paula Martins, Gabriel Devenyi, Raihaan Patel, Christopher Steele, Robert Gramer, Mallar Chakravarty, Raquel Chacon Ruiz Martinez
- Ultrashort Echo Time Magnetic Resonance Angiography in Follow-up of Intracranial Aneurysms Treated With Endovascular Coiling: Comparison of Time-of-Flight, Pointwise Encoding Time Reduction With Radial Acquisition, and Contrast-Enhanced Magnetic Resonance Angiography** S98
Sung-Hye You, Byungjun Kim, Kyung-Sook Yang, Bo Kyu Kim, Jaeil Ryu
- Computational Drug Repositioning Identifies Potentially Active Therapies for Chordoma** S99
Jeffrey I. Traylor, Hadley E. Sheppard, Visweswaran Ravikumar, Jonathan Breshears, Shaan M. Raza, Charles Y. Lin, Shreyaskumar R. Patel, Franco DeMonte
- Reliability of Using the Proposed International Consensus Video Signs of Potential Concussion for National Rugby League Head Impact Events** S100
Andrew J. Gardner
- Bilateral Deep Brain Stimulation is the Procedure to Beat for Advanced Parkinson Disease: A Meta-Analytic, Cost-Effective Threshold Analysis for Focused Ultrasound** S101
Uma V. Mahajan, Vinod K. Ravikumar, Kevin K. Kumar, Seul Ku, Disep I. Ojukwu, Camilla Kilbane, Pejman Ghanouni, Joshua M. Rosenow, Sherman C. Stein, Casey H. Halpern
- Ten-Year Outcomes of 1- and 2-Level Cervical Disc Arthroplasty From the Mobi-C Investigational Device Exemption Clinical Trial** S102
Kee Kim, Greg Hoffman, Hyun Bae, Andy Redmond, Michael Hisey, Pierce Nunley, Robert Jackson, David Tahernia, Ali Araghi
- Impact of Frailty on Outcomes Following Spine Surgery: A Prospective Cohort Analysis of 668 Patients** S103
Nitin Agarwal, Ezequiel Goldschmidt, Tavis Taylor, Souvik Roy, Stefanie C. Altieri Dunn, Andrew Bilderback, Robert M. Friedlander, Adam S. Kanter, David O. Okonkwo, Peter C. Gerszten, D. Kojo Hamilton, Daniel E. Hall

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

Occurrence, Risk Factors, and Time Trends for Late Reoperations due to Degenerative Cervical Spine Disease: A Finnish National Register Study of 19 377 Patients Operated on Between 1999 and 2015 S104

Anna Kotkansalo, Ville Leinonen, Merja Korajoki, Katariina Korhonen, Jaakko Rinne, Antti Malmivaara

Aneurysmal Subarachnoid Hemorrhage: Trends, Outcomes, and Predictions From a 15-Year Perspective of a Single Neurocritical Care Unit S105

Owen B. Samuels, Ofer Sadan, Chen Feng, Kathleen Martin, Khalid Medani, Yajun Mei, Daniel L. Barrow

Prediction of Worse Functional Status After Surgery for Degenerative Cervical Myelopathy: A Machine Learning Approach S106

Omar Khan, Jetan H. Badhiwala, Muhammad A. Akbar, Michael G. Fehlings

Posterior Vertebral Column Subtraction Osteotomy for Recurrent Tethered Cord Syndrome: A Multicenter, Retrospective Analysis S107

Nicholas Theodore, Ethan Cottrill, Samuel Kalb, Corinna Zygourakis, Bowen Jiang, Zach Pennington, Daniel Lubelski, Erick M. Westbroek, A. Karim Ahmed, Jeff Ehresman, Daniel M. Sciubba, Timothy F. Witham, Jay D. Turner, Mari Groves, U. Kumar Kakarla

Enhanced Recovery After Surgery Pathway for Single-Level Minimally Invasive Transforaminal Lumbar Interbody Fusion Decreases Length of Stay and Opioid Consumption S108

Mena G. Kerolus, Ketan Yerneni, Christopher D. Witiw, Alena Shelton, William Jeffrey Canar, Deval Daily, Ricardo B. V. Fontes, Harel Deutsch, Richard G. Fessler, Asokumar Buvanendran, John E. O'Toole

A Roadmap for Developing Plasma Diagnostic and Prognostic Biomarkers of Cerebral Cavernous Angioma With Symptomatic Hemorrhage (CASH) S109

Romuald Girard, Yan Li, Agnieszka Stadnik, Robert Shenkar, Nicholas Hobson, Sharbel Romanos, Abhinav Srinath, Thomas Moore, Rhonda Lightle, Abdallah Shkoukani, Amy Akers, Timothy Carroll, Gregory A. Christoforidis, James I. Koenig, Cornelia Lee, Kristina Piedad, Steven M. Greenberg, Helen Kim, Kelly D. Flemming, Yuan Ji, Issam A. Awad

Focused Ultrasound Thalamotomy for Refractory Essential Tremor: A Japanese Multicenter Single-Arm Study S110

Keiichi Abe, Shiro Horisawa, Toshio Yamaguchi, Hiroki Hori, Kazumichi Yamada, Kimito Kondo, Hironori Furukawa, Hajime Kamada, Haruhiko Kishima, Satoru Oshino, Hideki Mochizuki, Manabu Kanemoto, Hidehiro Hirabayashi, Kenji Fukutome, Hideyuki Ohnishi, Keiji Igase, Ichiro Matsubara, Takanori Ohnishi, Kazuhiko Sadamoto, Takaomi Taira

Encephaloduroarteriosynangiosis Averts Stroke in Atherosclerotic Patients With Border-Zone Infarct: Post Hoc Analysis From a Performance Criterion Phase II Trial S111

Miguel D. Quintero-Consuegra, Juan F. Toscano, Robin Babadjouni, Peyton Nisson, Mohammad N. Kayyali, Daniel Chang, Eyad Almallouhi, Jeffrey L. Saver, Nestor R. Gonzalez

Pathway-Based Reduction of Repeat Head Computed Tomography for Patients With Complicated Mild Traumatic Brain Injury: Implementation and Outcomes S112

Martina Stippler, Stacey Keith, Emmalin B. Nelton, Charles S. Parsons, Jennifer Singleton, Leslie A. Bilello, Carrie D. Tibbles, Roger B. Davis, Jonathan A. Edlow, Carlo L. Rosen

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

Continues

Woven Endobridge Embolization Versus Microsurgical Clipping for Unruptured Anterior Circulation Aneurysms: A Propensity Score Analysis S113

Lukas Goertz, Thomas Liebig, Eberhard Siebert, Lenhard Pennig, Kai Roman Laukamp, Erkan Celik, Marco Timmer, Gerrit Brinker, Marc Schlamann, Roland Goldbrunner, Franziska Dorn, Boris Krischek, Christoph Kabbasch

Stereotactic Radiosurgery for Choroid Plexus Tumors: A Report of the International Radiosurgery Research Foundation S114

Andrew Faramand, Hideyuki Kano, Ajay Niranjana, Ahmet F. Atik, Cheng-chia Lee, Huai-che Yang, Nasser Mohammed, Roman Liscak, Jaromir Hanuska, Manjul Tripathi, Douglas Kondziolka, Jason Sheehan, David Mathieu, John C. Flickinger, L. Dade Lunsford

Laparoscopic-Assisted Versus Mini-Open Laparotomy for Ventriculoperitoneal Shunt Placement in the Medicare Population S115

Syed I. Khalid, Ravi S. Nunna, Samantha Maasarani, Rachyl M. Shanker, Mandana Behbahani, Corbin P. Edmondson, Ankit I. Mehta, Samir K. Gupta, Edie Y. Chan, Alfonso Torquati, Richard W. Byrne, Owoicho Adogwa

Neuromodulation for Chronic Pelvic Pain: A Single-Institution Experience With a Collaborative Team S116

Cheyenne Bridger, Tarun Prabhala, Rachael Dawson, Olga Khazen, Jacquelyn MacDonell, Marisa DiMarzio, Michael D. Staudt, Elise J. B. De, Charles Argoff, Julie G. Pilitsis

Stereotactic Radiosurgery for Perioptic Meningiomas: An International, Multicenter Study S117

Adomas Bunevicius, Rithika Kormath Anand, Mohanad Suleiman, Ahmed M. Nabeel, Wael A. Reda, Sameh R. Tawadros, Khaled Abdelkarim, Amr M. N. El-Shehaby, Reem M. Emad, Tomas Chytka, Roman Liscak, Kimball Sheehan, Darrah Sheehan, Marco Perez Caceres, David Mathieu, Cheng-chia Lee, Huai-che Yang, Piero Picozzi, Andrea Franzini, Luca Attuati, Herwin Speckter, Jeremy Olivo, Samir Patel, Christopher P. Cifarelli, Daniel T. Cifarelli, Joshua D. Hack, Ben A. Strickland, Gabriel Zada, Eric L. Chang, Kareem R. Fakhoury, Chad G. Rusthoven, Ronald E. Warnick, Jason Sheehan

Prospective, Multicenter Clinical Study of Microvascular Decompression for Hemifacial Spasm S118

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

Biological Effective Dose as a Predictor of Hypopituitarism After Single-Fraction Pituitary Adenoma Radiosurgery: Dosimetric Analysis and Cohort Study of Patients Treated Using Contemporary Techniques S119

Christopher S. Graffeo, Avital Perry, Michael J. Link, Paul D. Brown, William F. Young, Bruce E. Pollock

Prognostic Factors Associated With Surviving Less Than 3 Months vs Greater Than 3 Years Specific to Spine Stereotactic Body Radiotherapy and Late Adverse Events S120

K. Liang Zeng, Arjun Sahgal, Chia-Lin Tseng, Sten Myrehaug, Hany Soliman, Jay Detsky, Eshetu G. Atenafu, Young Lee, Mikki Campbell, Pejman Maralani, Zain A. Husain

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

Stereotactic Radiosurgery for Atypical (World Health Organization II) and Anaplastic (World Health Organization III) Meningiomas: Results From a Multicenter, International Cohort Study S121

Matthew J. Shepard, Zhiyuan Xu, Kathryn Kearns, Chelsea Li, Ajay Chatrath, Kimball Sheehan, Darrah Sheehan, Andrew Faramand, Ajay Niranjana, Hideyuki Kano, Jason Gurewitz, Kenneth Bernstein, Roman Liscak, Khumar Guseynova, Inga S. Grills, Jacob S. Parzen, Christopher P. Cifarelli, Azeem A. Rehman, Ahmet Atik, Joshua Bakhsheshian, Gabriel Zada, Eric Chang, Steven Giannotta, Herwin Speckter, Hsiu-mei Wu, Douglas Kondziolka, John G. Golfinos, David Mathieu, Cheng-chia Lee, Ronald E. Warnick, L. Dade Lunsford, Jason P. Sheehan

Improvement in Quality of Life Following Surgical Resection of Benign Intradural Extramedullary Tumors: A Prospective Evaluation of Patient-Reported Outcomes S122

William C. Newman, John Berry-Candelario, Jemma Villavieja, Anne S. Reiner, Mark H. Bilsky, Ilya Laufer, Ori Barzilai

Machine Learning-Driven Metabolomic Evaluation of Cerebrospinal Fluid: Insights Into Poor Outcomes After Aneurysmal Subarachnoid Hemorrhage S123

Matthew Koch, Animesh Acharjee, Zsuzsanna Ament, Riana Schleicher, Matthew Bevers, Christopher Stapleton, Aman Patel, W. Taylor Kimberly

Adjuvant Radiotherapy Versus Watchful Waiting for World Health Organization Grade II Atypical Meningioma: A Single-Institution Experience S124

David P. Bray, Joseph W. Quillin, Robert H. Press, Yilin Yang, Zhengjia Chen, Bree R. Eaton, Jeffrey J. Olson

Intracerebral Hemorrhage Volume Reduction and Timing of Intervention Versus Functional Benefit and Survival in the MISTIE III and STICH Trials S125

Sean P. Polster, Julián Carrión-Penagos, Seán B. Lyne, Barbara A. Gregson, Ying Cao, Richard E. Thompson, Agnieszka Stadnik, Romuald Girard, Patricia Lynn Money, Karen Lane, Nichol McBee, Wendy Ziai, W. Andrew Mould, Ahmed Iqbal, Stephen Metcalfe, Yi Hao, Robert Dodd, Andrew P. Carlson, Paul J. Camarata, Jean-Louis Caron, Mark R. Harrigan, Mario Zuccarello, A. David Mendelow, Daniel F. Hanley, Issam A. Awad, on behalf of the MISTIE III and STICH I and II investigators

Postoperative Stereotactic Body Radiotherapy for Spinal Metastasis and Predictors of Local Control S126

Dukagjin M. Blakaj, Joshua D. Palmer, Khaled Dibs, Alexander Olausson, Eric C. Bourekas, Daniel Boulter, Ahmet S. Ayan, Eric Cochran, William S. Marras, Prasath Mageswaran, Miki Katzir, Vedat O. Yildiz, John Grecula, Andrea Arnett, Raju Raval, Thomas Scharschmidt, James B. Elder, Russell Lonser, Arnab Chakravarti, Ehud Mendel

Safety, Efficacy, and Durability of Stent Plus Balloon-Assisted Coiling for the Treatment of Wide-Necked Intracranial Bifurcation Aneurysms S127

Kubilay Aydin, Paul Stracke, Mynzhylky Berdikhojayev, Mehmet Barburuglu, Pascal J. Mosimann, Nurzhan Suleimankulov, Marat Sarshayev, Serra Sencer, Rene Chapot

Cognitive Functioning and Health-Related Quality of Life of Long-Term Survivors With Brain Metastases Up to 21 Months After Gamma Knife Radiosurgery S128

Eline Verhaak, Wietske C. M. Schimmel, Karin Gehring, Patrick E. J. Hanssens, Margriet M Sitskoorn

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Effect of Incisional Negative Pressure Wound Therapy vs Standard Wound Dressing on the Development of Surgical Site Infection after Spinal Surgery: A Prospective Observational Study** S129
 Kyle B. Mueller, Matthew D'Antuono, Nirali Patel, Gnel Pivazyan, Edward F. Aulisi, Karen K. Evans, M. Nathan Nair
- Smoking Is an Independent Risk Factor for 90-Day Readmission and Reoperation Following Posterior Cervical Decompression and Fusion** S130
 Ryan K. Badiie, Andrew K. Chan, Joshua Rivera, Annette Molinaro, Dean Chou, Praveen V. Mummaneni, Lee A. Tan
- Baseline Frailty Status Influences Recovery Patterns and Outcomes Following Alignment Correction of Cervical Deformity** S131
 Katherine E. Pierce, Peter G. Passias, Alan H. Daniels, Renaud Lafage, Waleed Ahmad, Sara Naessig, Virginie Lafage, Themistocles Protopsaltis, Robert Eastlack, Robert Hart, Douglas Burton, Shay Bess, Frank Schwab, Christopher Shaffrey, Justin S. Smith
- Magnetic Resonance Imaging-Guided Laser Thermal Ventral Capsulotomy for Intractable Obsessive-Compulsive Disorder** S132
 Nicole C. R. McLaughlin, Peter M. Lauro, Morgan T. Patrick, Francesco G. Pucci, Adriel Barrios-Anderson, Benjamin D. Greenberg, Steven A. Rasmussen, Wael F. Asaad
- Rotational Angiography-Based Gamma Knife Radiosurgery for Brain Arteriovenous Malformations: Preliminary Therapeutic Outcomes of the Novel Method** S133
 Yuki Shinya, Hirotaka Hasegawa, Masahiro Shin, Mariko Kawashima, Takehiro Sugiyama, Osamu Ishikawa, Satoshi Koizumi, Yuichi Suzuki, Hirofumi Nakatomi, Nobuhito Saito
- Reducing Superfluous Opioid Prescribing Practices After Brain Surgery: It Is Time to Talk About Drugs** S134
 Karam Asmaro, Hassan A. Fadel, Sameah A. Haider, Jacob Pawloski, Edvin Telemi, Tarek R. Mansour, Ankush Chandra, Michael Bazydlo, Adam M. Robin, Ian Y. Lee, Ellen L. Air, Jack P. Rock, Steven N. Kalkanis, Jason M. Schwalb
- Postoperative Admission of Adult Craniotomy Patients to the Neuroscience Ward Reduces Length of Stay and Cost** S135
 Matthew Z. Sun, Diana Babayan, Jia-Shu Chen, Maxwell M. Wang, Priyanka K. Naik, Kara Reitz, Jingyi Jessica Li, Nader Pouratian, Won Kim
- Neuroform Atlas Stent for Treatment of Middle Cerebral Artery Aneurysms: 1-Year Outcomes From Neuroform Atlas Stent Pivotal Trial** S136
 Ricardo A. Hanel, Nam Yoon, Eric Sauvageau, Amin Aghaebrahim, Eugene Lin, Ashutosh P. Jadhav, Tudor G. Jovin, Ahmad Khaldi, Rishi G. Gupta, Andrew Johnson, Donald Frei, David Loy, Adel Malek, Gabor Toth, Adnan Siddiqui, John Reavey-Cantwell, Ajith Thomas, Steven W. Hetts, Brian T. Jankowitz, Osama O. Zaidat
- Falls and Fear of Falling in Shunted Idiopathic Normal Pressure Hydrocephalus—The Idiopathic Normal Pressure Hydrocephalus Comorbidity and Risk Factors Associated With Hydrocephalus Study** S137
 Jenny Larsson, Hanna Israelsson, Anders Eklund, Lillemor Lundin-Olsson, Jan Malm

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Incidence, Characteristics and Outcomes of Large Vessel Stroke in COVID-19 Cohort: An International Multicenter Study** S138
 Priyank Khandelwal, Fawaz Al-Mufti, Ambooj Tiwari, Amit Singla, Adam A. Dmytriw, Mariangela Piano, Luca Quilici, Guglielmo Pero, Leonardo Renieri, Nicola Limbucci, Mario Martínez-Galdámez, Miguel Schüller-Arteaga, Jorge Galván, Juan Francisco Arenillas-Lara, Zafar Hashim, Sanjeev Nayak, Keith Desousa, Hai Sun, Pankaj K. Agarwalla, Anil Nanda, J. Sudipta Roychowdhury, Emad Nourollahzadeh, Tannavi Prakash, Chirag D. Gandhi, Andrew R. Xavier, J. Diego Lozano, Gaurav Gupta, Dileep R Yavagal
- Dual Regeneration of Muscle and Nerve by Intramuscular Infusion of Mitochondria in a Nerve Crush Injury Model** S139
 Meei-Ling Sheu, Chiung-Chyi Shen, Hsi-Kai Tsou, Meng Yin Yang, Hong-Lin Su, Jason Sheehan, Ming-Hong Chang, Hong-Shiu Chen, Hung-Chuan Pan
- Natural History of Untreated Transverse/Sigmoid Sinus Thrombosis Following Posterior Fossa Surgery: Case Series and Literature Review** S140
 Alon Orlev, Christopher M. Jackson, Andrew Luksik, Tomas Garzon-Muvdi, Wuyang Yang, Wade Chien, Sagi Harnof, Rafael J. Tamargo
- Long-Term Outcomes of Endoscopic Third Ventricle Colloid Cyst Resection: Case Series With a Proposed Grading System** S141
 Albert M. Isaacs, Yarema B. Bezchlibnyk, Jarred Dronyk, Geberth Urbaneja, Heather Yong, Mark G. Hamilton
- A Novel Technical Refinement of Microvascular Decompression: Pain Relief and Complication Rate in a Consecutive Series of Patients With Trigeminal Neuralgia** S142
 Francesco Tomasello, Antonino Germanò, Angelo Lavano, Alberto Romano, Daniele Cafarella, Nicola Gorgoglione, Domenico La Torre
- Bilateral Subthalamic Nucleus Deep Brain Stimulation in Elderly Patients With Parkinson Disease: A Case-Control Study** S143
 Kyle T. Mitchell, John R. Younce, Scott A. Norris, Samer D. Tabbal, Joshua L. Dowling, Keith M. Rich, Joel S. Perlmutter, Mwiza Ushe
- Modified Facet Joint Fusion for Lumbar Degenerative Disease: Case Series of a Fusion Technique, Clinical Outcomes, and Fusion Rate in 491 Patients** S144
 Zhinan Ren, Zheng Li, Shugang Li, Derong Xu, Xin Chen
- Coronal Correction Using Kickstand Rods for Adult Thoracolumbar/Lumbar Scoliosis: Case Series With Analysis of Early Outcomes and Complications** S145
 Thomas J. Buell, Peter A. Christiansen, James H. Nguyen, Ching-Jen Chen, Chun-Po Yen, Christopher I. Shaffrey, Justin S. Smith
- Access-Site Complications in Transfemoral Neuroendovascular Procedures: A Systematic Review of Incidence Rates and Management Strategies** S146
 Mazen Oneissi, Ahmad Sweid, Stavropoula Tjournakaris, David Hasan, M. Reid Gooch, Robert H. Rosenwasser, Pascal Jabbour
- Comparison of the Accuracy of C1 Pedicle Screw Fixation Using Fluoroscopy and Free-Hand Techniques in Patients With Posterior Arch Thickness of Less Than 4 mm** S147
 Byung-Jou Lee, Myeongjong Kim, Seong Kyun Jeong, Subum Lee, Sang-Ryong Jeon, Sung Woo Roh, Jin Hoon Park

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

- Endoscopic Third Ventriculostomy for Hydrocephalus Secondary to Extraventricular Obstruction in Thalamic Hemorrhage: A Case Series** S148
Hussein A. Zeineddine, Antonio Dono, Ryan Kitagawa, Sean I. Savitz, Huimahn Alex Choi, Tiffany R. Chang, Leomar Y. Ballester, Yoshua Esquenazi
- Surgical Management of Skull Base Osteoradionecrosis in the Cancer Population – Treatment Outcomes and Predictors of Recurrence: A Case Series** S149
Ahmed Habib, Matthew M. Hanasono, Franco DeMonte, Ali Haider, Jonathan D. Breshears, Marc-Elie Nader, Paul W. Gidley, Shirley Y. Su, Ehab Y. Hanna, Shaan M. Raza
- Access Through the Anatomical Snuffbox for Neuroendovascular Procedures: A Single Institution Series** S150
Joshua H. Weinberg, Ahmad Sweid, Omaditya Khanna, Nikolaos Mouchtouris, Ashlee Asada, Somnath Das, Darcy Curtis, Julie Kim, Victor Romo, Michael Reid Gooch, Nabeel Herial, Stavropoula Tjoumakaris, Hekmat Zarzour, Robert H. Rosenwasser, Pascal Jabbour
- Transfacet Minimally Invasive Transforaminal Lumbar Interbody Fusion With an Expandable Interbody Device—Part II: Consecutive Case Series** S151
Jawad M. Khalifeh, Christopher F. Dibble, Priscilla Stecher, Ian Dorward, Ammar H. Hawasli, Wilson Z. Ray
- Long-Term Improvement of Parkinson Disease Motor Symptoms Derived From Lesions of Prelemniscal Fiber Tract Components** S152
Maria Guadalupe García-Gomar, Luis Concha, Julian Soto-Abraham, Jacques D. Tournier, Gustavo Aguado-Carrillo, Francisco Velasco-Campos
- Minimally Invasive Transforaminal Lumbar Interbody Fusion With Intraoperative Fluoroscopy for Disc Space Preparation: Analysis of Fusion Rate and Clinical Results** S153
Guang-Xun Lin, Sagar Sharma, Gang Rui, Myung-Soo Song, Jin-Sung Kim
- Management of Thoracic Disc Herniation Using the Mini-Open Retropleural Approach: Technique Illustration and Clinical Outcomes of 33 Patients From a Single Academic Center** S154
Mohammad Hassan A. Noureldine, Elliot Pressman, Paul R. Krafft, Marek Molcanyi, Nam D. Tran, Mark S. Greenberg, Puya Alikhani
- Laser Interstitial Thermal Therapy in the Treatment of Thalamic Brain Tumors: A Case Series** S155
Roger Murayi, Hamid Borghei-Razavi, Gene H. Barnett, Alireza M. Mohammadi
- Microsurgical Transcranial Approach of 112 Paraoptic Meningiomas: A Single-Center Case Series** S156
Etienne Lefevre, Louis-Marie Terrier, Olivier Bekaert, Adrien Simonneau, Alister Rogers, Catherine Vignal-Clermont, Hervé Boissonnet, Gilles Robert, Guillaume Lot, Dorian Chauvet
- Risk Factors for Wire Fracture or Tethering in Deep Brain Stimulation: A 15-Year Experience** S157
Charles E. Mackel, Efstathios Papavassiliou, Ron L. Alterman
- Anterior Cervical Corpectomy and Fusion for Degenerative and Traumatic Spine Disorders, Single-Center Experience of a Case Series of 119 Patients** S158
Charles Tatter, Oscar Persson, Gustav Burström, Erik Edström, Adrian Elmi-Terander

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com, operativeneurosurgery-online.com, and neurosurgeryopen-online.com. Complete bibliographic information can be found below each visual abstract.

Laser Interstitial Thermal Therapy Case Series: Choosing the Correct Number of Fibers Depending on Lesion Size	S159
Kyle P. O'Connor, Ali H. Palejwala, Camille K. Milton, Victor M. Lu, Chad A. Glenn, Michael E. Sughrue, Andrew K. Conner	
Endoscopic Treatment of Intracranial Arachnoid Cysts: A Retrospective Analysis of a 25-Year Experience	S160
Joachim Oertel, Stefan Linsler, Wolfgang Wagner, Michael Gaab, Henry Schroeder, Jana Rediker	
Durability and Failure Types of S2-Alar-Iliac Screws: An Analysis of 312 Consecutive Screws	S161
Seung-Jae Hyun, Jong-myung Jung, Ki-Jeong Kim, Tae-Ahn Jahng	
Operative Technique and Lessons Learned From Surgical Implantation of the NeuroPace Responsive Neurostimulation® System in 57 Consecutive Patients	S162
Max O. Krucoff, Thomas A. Wozny, Anthony T. Lee, Vikram R. Rao, Edward F. Chang	
Intraoperative Computed Tomography for Registration of Stereotactic Frame in Frame-Based Deep Brain Stimulation	S163
Michael R. Jones, Archit B. Baskaran, Mark J. Nolt, Joshua M. Rosenow	
Endovascular Treatment of Anterior Circulation Aneurysms With the p64 Flow Modulation Device: Mid- and Long-Term Results in 617 Aneurysms From a Single Center	S164
Marta Aguilar Pérez, Elina Henkes, Victoria Hellstern, Carmen Serna Candel, Christina Wendl, Hansjörg Bänzner, Oliver Ganslandt, Hans Henkes	
Complication Rates in Early Versus Late Cranioplasty—A 14-Year Single-Center Case Series	S165
Muhibullah S. Tora, James G. Malcolm, Zayan Mahmooth, Amit Pujari, Rima S. Rindler, Nicholas M. Boulis, Gustavo Pradilla, Jonathan A. Grossberg, Faiz U. Ahmad	
Endovascular Treatment of Tentorial Dural Arteriovenous Fistulas Using the Transarterial Approach as a First-Line Strategy	S166
Marco Túlio Salles Rezende, Felipe Padovani Trivelato, Luis Henrique de Castro-Afonso, Guilherme Seizem Nakiri, Caio César Molina Silva, Thiago Giansante Abud, Benedicto Oscar Colli, Alexandre Cordeiro Ulhôa, Daniel Giansante Abud	
Transylvian Insular Glioma Surgery: New Classification System, Clinical Outcome in a Consecutive Series of 79 Cases	S167
David Pitskhelauri, Andrey Bykanov, Alexander Konovalov, Gleb Danilov, Svetlana Buklina, Alexander Sanikidze, Rinat Sufianov	
Prediction of Pathological and Radiological Nature of Glioma by Mass Spectrometry Combined With Machine Learning	S168
Keiko Suzuki, Kentaro Yoshimura, Tomoyuki Kawataki, Mitsuto Hanihara, Sen Takeda, Hiroyuki Kinouchi	
Stand-Alone Middle Meningeal Artery Embolization for Treatment of Giant Chronic Subdural Hematoma in Elderly Frail Patients: A Case Series	S169
Gregory J. Cannarsa, Joshua Olexa, Timothy Chryssikos, Aaron P. Wessell, Ashish Sharma, Timothy R. Miller, Gaurav Jindal, Bizhan Aarabi, Dheeraj Gandhi	

This supplement contains only the Visual Abstracts from the listed articles. Full length articles are available at neurosurgery-online.com and operativeneurosurgery-online.com. Complete bibliographic information can be found below each visual abstract.
