



THE EDITOR'S MESSAGE

Knowledge and Measurement, Part 1: What Can be Known and What Cannot

667

Douglas Kondziolka

MEDICINE & LAW REVIEW SERIES

669

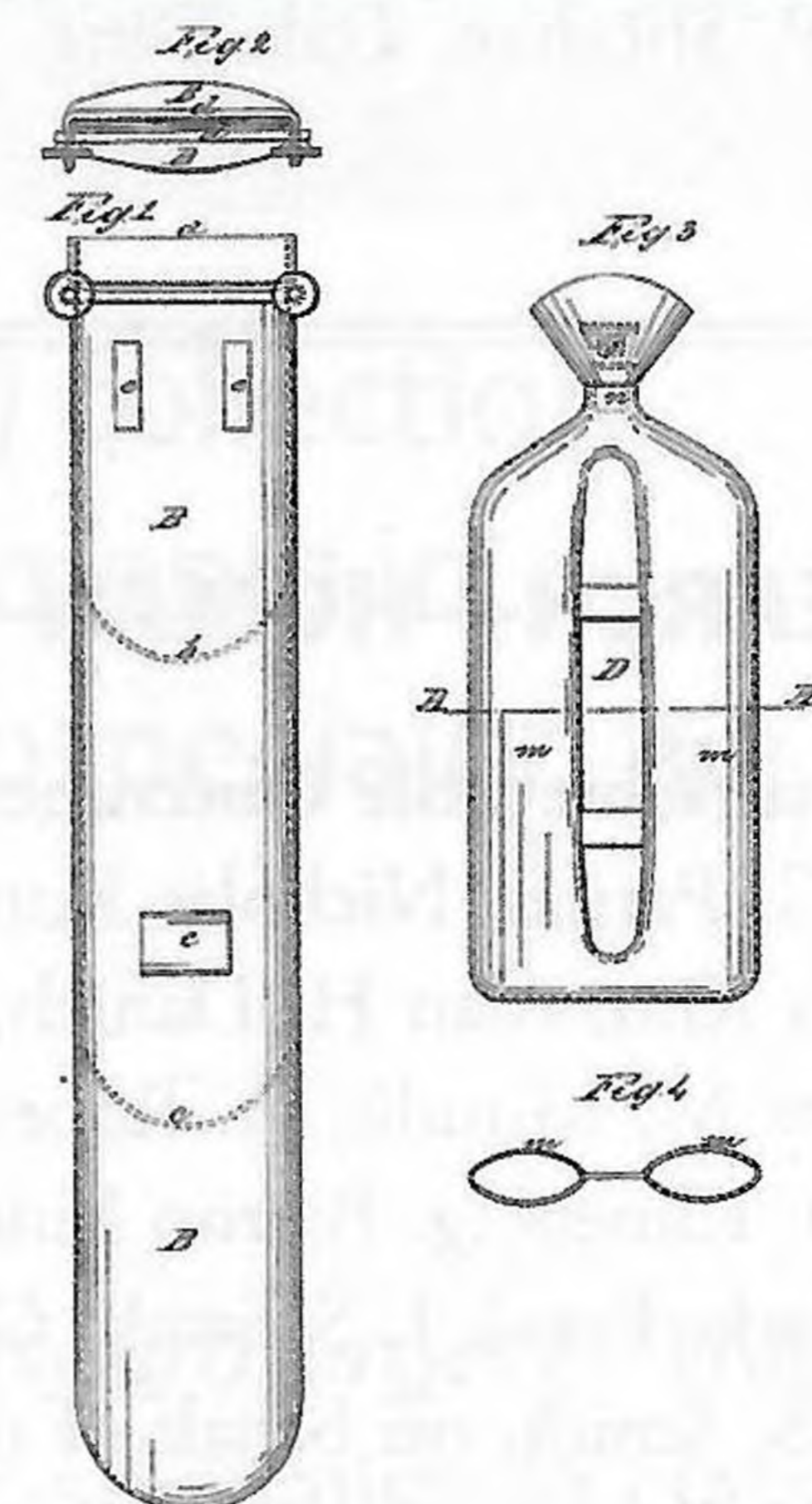
EDITOR'S CHOICE

Intellectual Property Protection in Neurosurgery: An Overview

David J. Dykeman, Olivia Schmitz, T. Forcht Dagi

*J. Chapman,
Bandage.
Patented Feb. 21, 1866.*

11946,535.



*Witnesses
George Kautonia
& E. E. Equire*

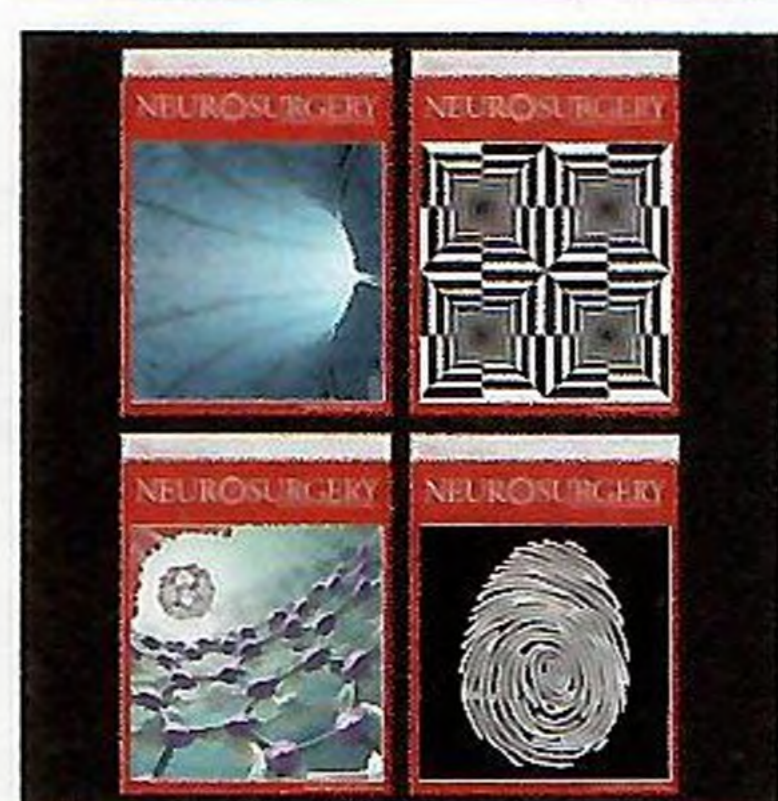
*Inventor
John Chapman*

COMMENTARY (ONLINE ONLY)

Commentary: Intellectual Property Protection in Neurosurgery: An Overview

E124

Catherine A. Mazzola



On the Cover

This month's cover reflects the selections of Dr. Nelson Oyesiku as Editor-in-Chief, using technology as art to reflect evolving neurosurgery devices and neuroscience. Images promote graphene for biomedical applications, visual perceptions and inference, tubular conduits, and biosensors for informatics and

wearable devices, from journal covers about a decade ago.



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

REVIEW

SDC
ABSTRACT+

Seizure Outcome of Temporal Lobe Epilepsy Surgery in Adults and Children: A Systematic Review and Meta-Analysis

676

Carmen Barba, Sabrina Giometto, Ersilia Lucenteforte, Simona Pellacani, Giulia Matta, Alessandra Bettiol, Sara Minghetti, Lavinia Falorni, Federico Melani, Gianpiero Di Giacomo, Flavio Giordano, Salvatore De Masi, Renzo Guerrini

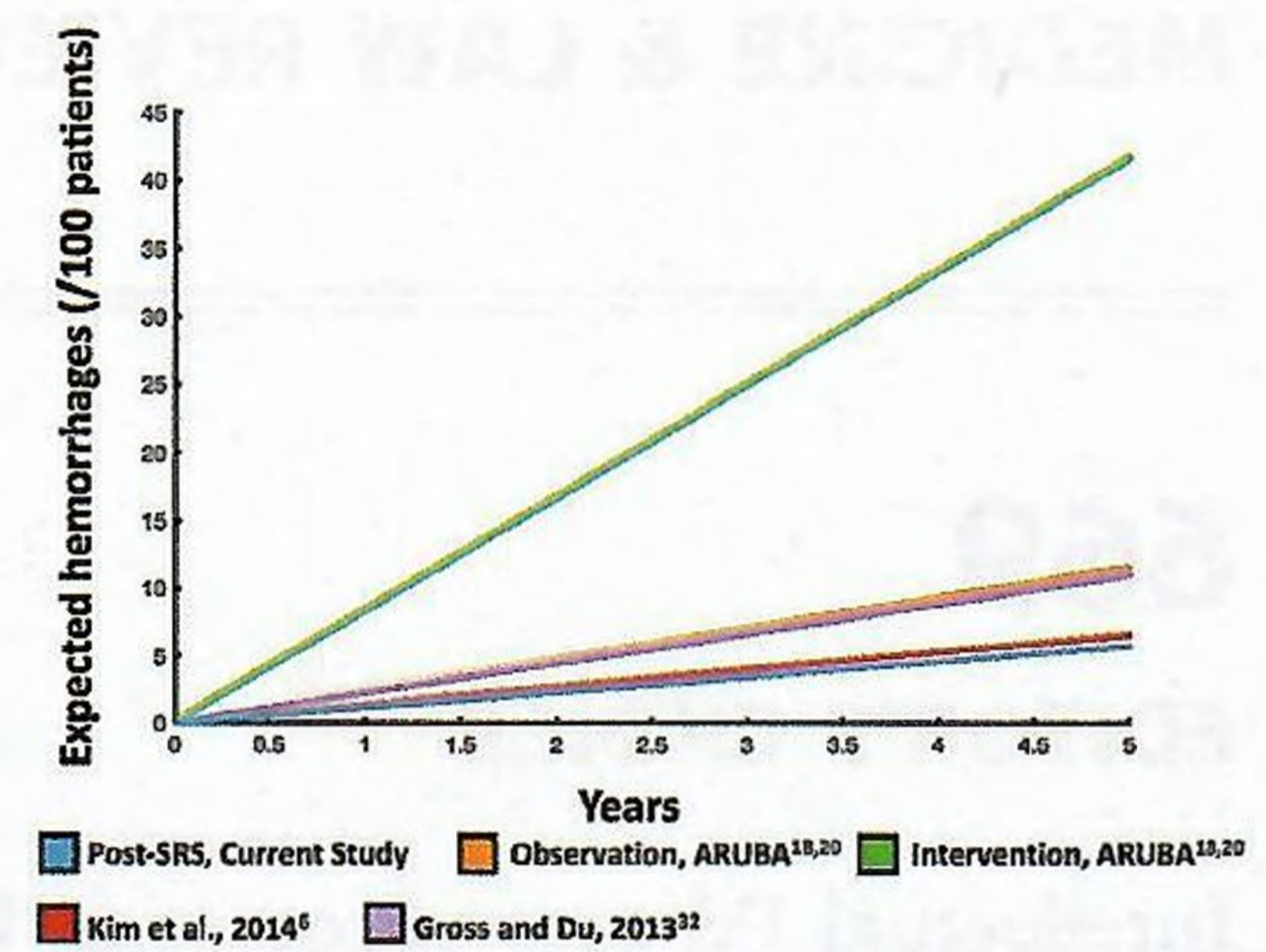
684

EDITOR'S CHOICE

SDC
SPEAKS!
ABSTRACT+

Stereotactic Radiosurgery for A Randomized Trial of Unruptured Brain Arteriovenous Malformations-Eligible Patients: A Meta-Analysis

Adeel Ilyas, Ching-Jen Chen, Isaac Josh Abecassis, Fadi Al-Saiegh, Natasha Ironside, Pascal M. Jabbour, Stavropoula Tjoumakaris, M. Reid Gooch, Cheng-Chia Lee, Jason P. Sheehan, Dale Ding



RESEARCH—HUMAN—CLINICAL STUDIES

SPEAKS!
ABSTRACT+

Highest Achievable Outcomes for Patients Undergoing Cervical Deformity Corrective Surgery by Frailty

693

Peter G. Passias, Nicholas Kummer, Tyler K. Williamson, Kevin Moattari, Virginie Lafage, Renaud Lafage, Han Jo Kim, Alan H. Daniels, Jeffrey L. Gum, Bassel G. Diebo, Themistocles S. Protopsaltis, Gregory M. Mundis, Jr, Robert K. Eastlack, Alexandra Soroceanu, Justin K. Scheer, D. Kojo Hamilton, Eric O. Klineberg, Breton Line, Robert A. Hart, Douglas C. Burton, Praveen Mummaneni, Dean Chou, Paul Park, Frank J. Schwab, Christopher I. Shaffrey, Shay Bess, Christopher P. Ames, Justin S. Smith, on behalf of the International Spine Study Group

COMMENTS
SDC

Laser Interstitial Thermal Therapy for First-Line Treatment of Surgically Accessible Recurrent Glioblastoma: Outcomes Compared With a Surgical Cohort

701

Hassan A. Fadel, Sameah Haider, Jacob A. Pawloski, Hesham M. Zakaria, Mohamed Macki, Seamus Bartlett, Lonni Schultz, Adam M. Robin, Steven N. Kalkanis, Ian Y. Lee

COMMENTS

Intracranial Artery Morphology in Pediatric Moya Moya Disease and Moya Moya Syndrome

710

Vivek S. Yedavalli, Jennifer L. Quon, Elizabeth Tong, Eric K. van Staalduinen, Pauline Mouches, Lily H. Kim, Gary K. Steinberg, Gerald A. Grant, Kristen W. Yeom, Nils D. Forkert

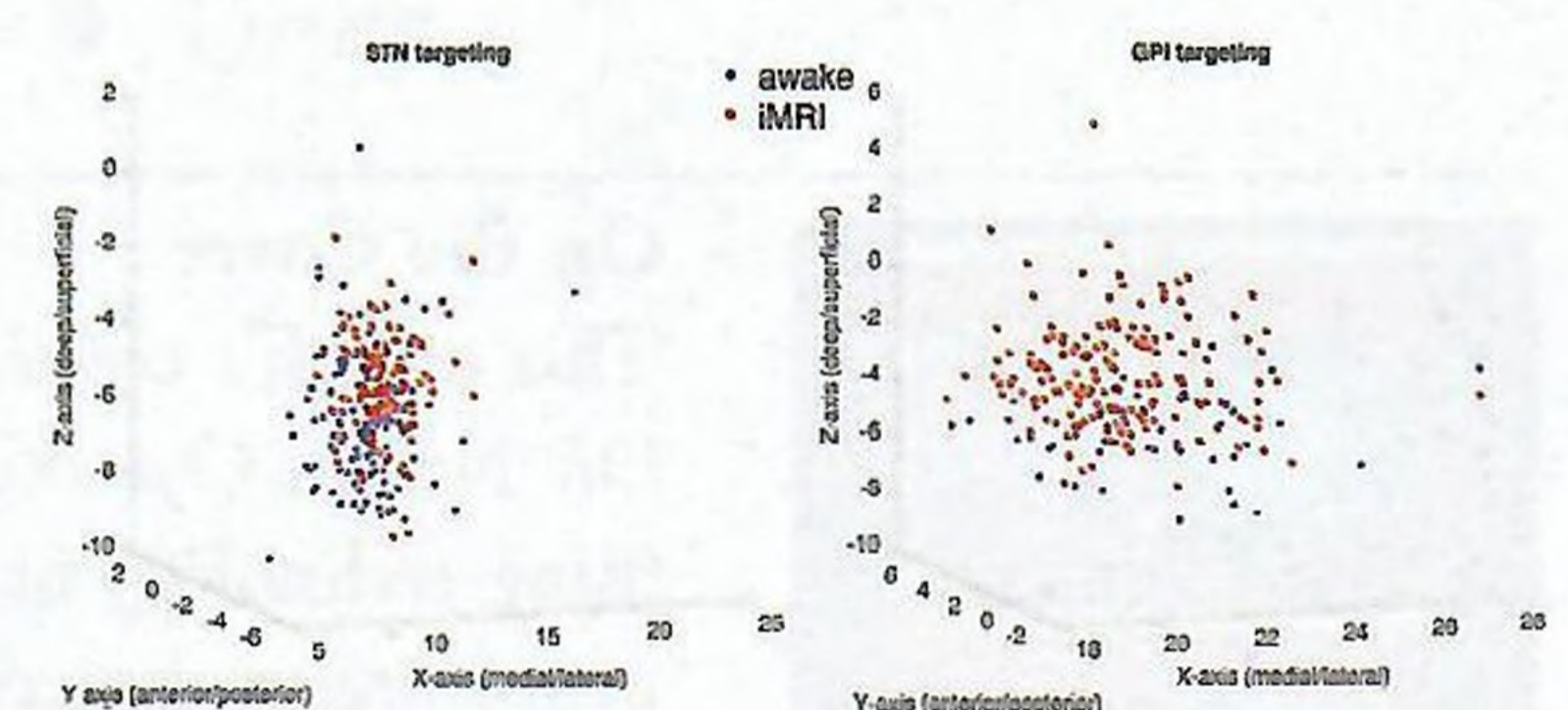
717

EDITOR'S CHOICE

COMMENTS

Targeting Accuracy and Clinical Outcomes of Awake versus Asleep Interventional Magnetic Resonance Imaging-Guided Deep Brain Stimulation for Parkinson's Disease: The University of California, San Francisco Experience

Anthony T. Lee, Kasey J. Han, Noah Nichols, Vivek R. Sudhakar, John F. Burke, Thomas A. Wozny, Jason E. Chung, Monica M. Volz, Jill L. Ostrem, Alastair J. Martin, Paul S. Larson, Philip A. Starr, Doris D. Wang



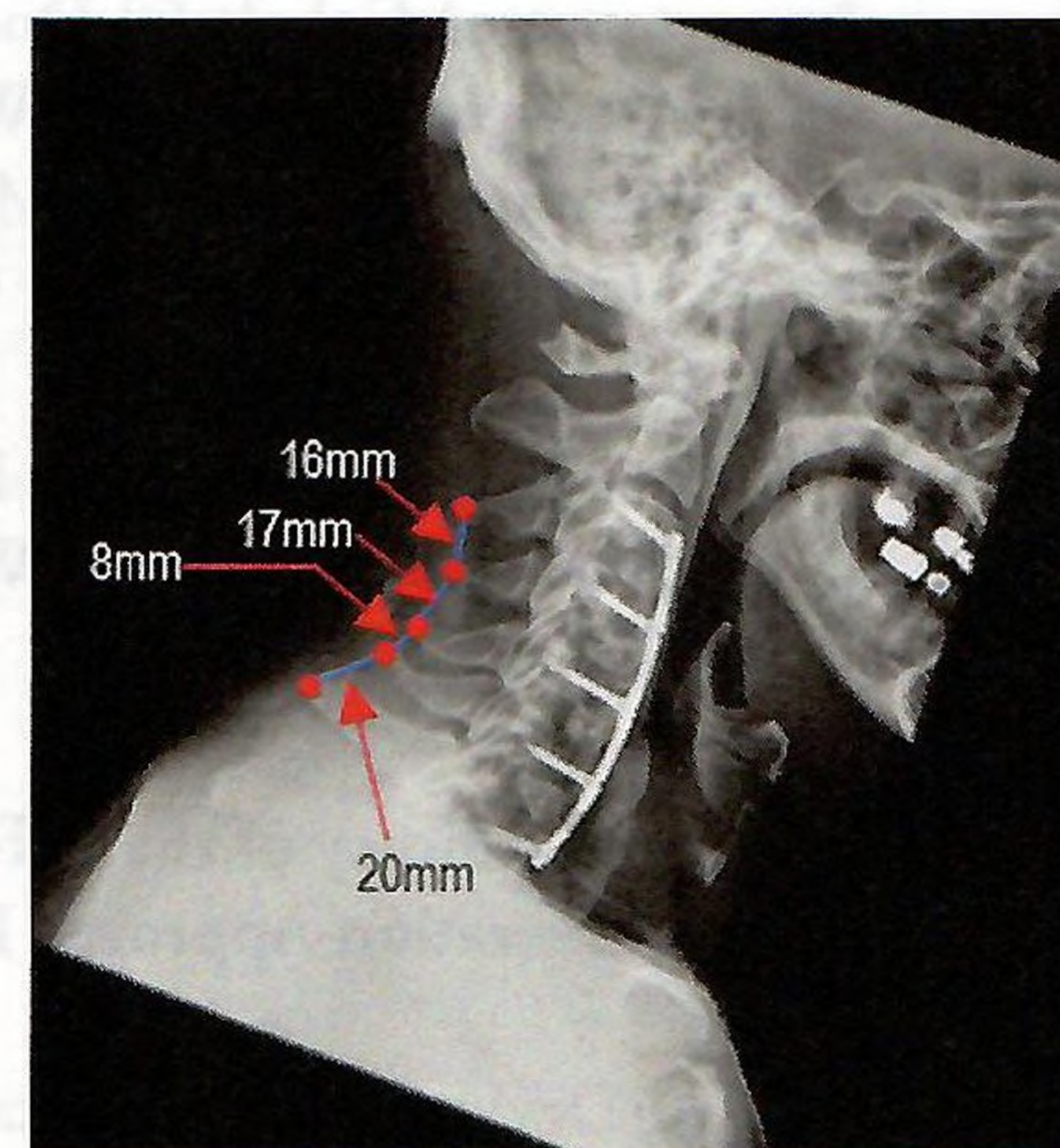
-
- SDC** **Long-Term Outcomes of Bilateral Subthalamic Nucleus Deep Brain Stimulation for Patients With Parkinson's Disease: 10 Years and Beyond** 726
SPEAKS!
ABSTRACT+ Hye Ran Park, Hyung-Jun Im, Jeongbin Park, Byung Woo Yoon, Yong Hoon Lim, Eun Jin Song, Kyung Ran Kim, Jae Meen Lee, Kawngwoo Park, Kwang Hyon Park, Hyun Joo Park, Jung-Hwan Shin, Kyung Ah Woo, Jee Young Lee, Suyeon Park, Han-Joon Kim, Beomseok Jeon, Sun Ha Paek
- ABSTRACT+** **Venous Sinus Stenting for Low Pressure Gradient Stenoses in Idiopathic Intracranial Hypertension** 734
PODCAST Mehmet Enes Inam, Juan Carlos Martinez-Gutierrez, Matthew J. Kole, Francisco Sanchez, Elvira Lekka, Van Thi Thanh Truong, Victor Lopez-Rivera, Faheem G. Sheriff, Laura A. Zima, Claudia Pedroza, Rosa Tang, Ore-Ofe Adesina, Allison Engstrom, Sunil A. Sheth, Peng Roc Chen
- OPEN** **Early Diagnosis and Surgical Intervention Within 3 Weeks From Symptom Onset Are Associated With Prolonged Survival of Patients With Glioblastoma** 741
COMMENTS
SDC Daisuke Kawauchi, Makoto Ohno, Yasuji Miyakita, Masamichi Takahashi, Shunsuke Yanagisawa, Takaki Omura, Akihiko Yoshida, Yuko Kubo, Hiroshi Igaki, Koichi Ichimura, Yoshitaka Narita
- SDC** **Endovascular Therapy for Cerebral Vein Thrombosis: A Propensity-Matched Analysis of Anticoagulation in the Treatment of Cerebral Venous Thrombosis** 749
ABSTRACT+ James E. Siegler, Liqi Shu, Shadi Yaghi, Setareh Salehi Omran, Marwa Elnazeir, Ekaterina Bakradze, Marios Psychogios, Gian Marco De Marchis, Siyuan Yu, Piers Klein, Mohamad Abdalkader, Thanh N. Nguyen, on behalf of the ACTION-CVT Investigators
- Factors Affecting Stiffness-Related Functional Disability After Long Segmental Fusion for Adult Spinal Deformity** 756
 Se-Jun Park, Chong-Suh Lee, Byeong-Jik Kang, Aditya Raj, Tae-Soo Shin, Jin-Sung Park
-

764

EDITOR'S CHOICE

Comparison of Fusion versus Nonunion After 4-Level and 5-Level Anterior Cervical Discectomy and Fusion With Anterior Plate Fixation

Adewale A. Bakare, Adam D. Smitherman, Ricardo B. V. Fontes, John E. O'Toole, Harel Deutsch, Vincent C. Traynelis



Resection of the Cavernous Sinus Medial Wall Improves Remission Rate in Functioning Pituitary Tumors: Retrospective Analysis of 248 Consecutive Cases

Atsushi Ishida, Hideki Shiramizu, Haruko Yoshimoto, Masataka Kato, Naoko Inoshita, Nobuhiro Miki, Masami Ono, Shozo Yamada

SDC ABSTRACT+	Angioarchitectural Analysis of Arteriovenous Shunts in Dural Arteriovenous Fistulas and Its Clinical Implications	782
	Junhyung Kim, Byung Moon Kim, Keun Young Park, Jae Whan Lee, Yong Bae Kim, Joonho Chung, Dong Joon Kim	
SDC	Serum Levels of Myo-inositol Predicts Clinical Outcome 1 Year After Aneurysmal Subarachnoid Hemorrhage	790
	Conny Johansson, Lars-Owe D. Koskinen, Rickard L. Sjöberg, Peter Lindvall	
SDC	Automated Detection and Surgical Planning for Focal Cortical Dysplasia with Multicenter Validation	799
	Jiajie Mo, Jianguo Zhang, Wenhan Hu, Lin Sang, Zhong Zheng, Wenjing Zhou, Haixiang Wang, Junming Zhu, Chao Zhang, Xiu Wang, Kai Zhang	
SDC SPEAKS! ABSTRACT+	The Impact of Frailty on Traumatic Brain Injury Outcomes: An Analysis of 691 821 Nationwide Cases	808
	Oliver Y. Tang, Belinda Shao, Anna R. Kimata, Rahul A. Sastry, Joshua Wu, Wael F. Asaad	

BOOK REVIEW (ONLINE ONLY)

Book Review: <i>Perioperative Neuroscience: Translational Research</i>	E125
James G. Malcolm	

CORRESPONDENCE (ONLINE ONLY)

Commentary: The Association of Language Barriers With Process Outcomes After Craniotomy for Brain Tumor	E127
Caroline Hadley, Akash Patel	

Commentary: Predictors and Impact of Postoperative 30-Day Readmission in Glioblastoma	E129
Antonio Dono, Ana G. Rodriguez-Armendariz, Yoshua Esquenazi	

Letter: Importance of Cobalt-60 Dose Rate and Biologically Effective Dose on Local Control for Intracranial Meningiomas Treated With Stereotactic Radiosurgery	E131
Mário Vicente Campos Guimarães, Manoel Jacobsen Teixeira, Ana Luiza Costa Zaninotto, Josué Andrade Martins, Julia Souza e Costa, Wellingson Silva Paiva	

In Reply: Importance of Cobalt-60 Dose Rate and Biologically Effective Dose on Local Control for Intracranial Meningiomas Treated With Stereotactic Radiosurgery	E133
Michael Huo, Derek S. Tsang	

Letter: Safety and Efficacy of the Off-Label Use of Pipeline Embolization Device Based on the 2018 Food and Drug Administration-Approved Indications for Intracranial Aneurysms: A Single-Center Retrospective Cohort Study	E135
Samuel J. Cler, David C. Lauzier, Akash P. Kansagra	

In Reply: Safety and Efficacy of the Off-Label Use of Pipeline Embolization Device Based on the 2018 Food and Drug Administration-Approved Indications for Intracranial Aneurysms: A Single-Center Retrospective Cohort Study	E136
Alejandro Enriquez-Marulanda, Anirudh Penumaka, Christopher S. Ogilvy, Ajith J. Thomas, Justin M. Moore	

Letter: Neurosurgical Complications: Forgive and Remember	E137
Walter C. Jean	

In Reply: Neurosurgical Complications: Forgive and Remember E138
Jacques J. Morcos

Letter: Association of Patient Frailty With Vestibular Schwannoma Resection Outcomes and Machine Learning Development of a Vestibular Schwannoma Risk Stratification Score E139
Christian A. Bowers, Samantha Varela, Syed Faraz Kazim, Richard Gurgel

In Reply: Association of Patient Frailty With Vestibular Schwannoma Resection Outcomes and Machine Learning Development of a Vestibular Schwannoma Risk Stratification Score E141
Oliver Y. Tang, Ankush I. Bajaj, Kevin Zhao, Krissia M. Rivera Perla, Yu-Lan Mary Ying, Robert W. Jyung, James K. Liu

Letter: Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients With Thoracolumbar Spine Trauma: Radiological Evaluation E143
Mohamed M. Aly

In Reply: Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Evaluation and Treatment of Patients With Thoracolumbar Spine Trauma: Radiological Evaluation E145
Pratyush Shahi, Sheeraz A. Qureshi

In Reply: The Modern Evolution of Simulations in Endovascular Neurosurgery—A Short Review E147
Mrinmoy Kundu, Ebtesam Abdulla, Md Moshir Rahman

Letter: Review of Cerebrospinal Fluid Physiology and Dynamics: A Call for Medical Education Reform E148
Lorenzo Giammattei, Daniele Starnoni, Mahmoud Messerer, Roy Thomas Daniel

In Reply: Review of Cerebrospinal Fluid Physiology and Dynamics: A Call for Medical Education Reform E150
Travis J. Atchley

DEPARTMENTS

Calendar of Events N1
Next Month in *Neurosurgery* N2

OPEN

Open Access

ABSTRACT+

Enhanced Abstract

PODCAST

Journal Club Podcast

SPEAKS!

Neurosurgery Speaks!

SDC

Supplemental Digital Content

COMMENTS

Publication Comments