



Cover caption: Evaluation of a previously treated posterior communicating artery aneurysm using the Sim&Size software from the manuscript by Piergallini *et al.*

#### Editor-in-Chief

Felipe C. Albuquerque

#### Deputy Editors

David Fiorella

Joshua Hirsch

#### Commissioning Editor

Michael Chen

#### Associate Editors

Alessandra Biondi

Kyle Fargen

Jens Fiebler

Ashutosh Jadhav

William Mack

James Milburn

J Mocco

Gabor Toth

Philip White

#### Associate Editors, Basic Science

Matthew Gounis

David Steinman

#### Assistant Editors, Social Media

Dorothea Altschul

Reade DeLeacy

Andrew Ducruet

Michael Levitt

#### Assistant Editors, Technical Videos

Waleed Brinjikji

Maxim Mokin

#### Editor Emeritus

Robert Tarr

#### SNIS Executive Director

Marie Williams

#### Editorial Office

Journal of NeuroInterventional Surgery BMJ Publishing Group Ltd

BMA House

Tavistock Square

London, WC1H 9JR, UK

E: [info.jnis@bmj.com](mailto:info.jnis@bmj.com)

#### Guidelines for authors and reviewers

Full instructions are available online at <http://jnls.bmjjournals.org>. Articles must be submitted electronically <http://mc.manuscriptcentral.com/jnis>. Authors retain copyright but are required to grant JNIS an exclusive licence to publish <http://JNIS.bmjjournals.org/licence.dtl>

ISSN: 1759-8478 (print)

ISSN: 1759-8486 (online)

Twitter: @JNIS\_BMJ

**Disclaimer:** The Editor of *Journal of NeuroInterventional Surgery* has been granted editorial freedom and *Journal of NeuroInterventional Surgery* is published in accordance with editorial guidelines issued by the World Association of Medical Editors and the Committee on Publication Ethics. *Journal of NeuroInterventional Surgery* is primarily intended for healthcare professionals and its content is for information only. The Journal is published without any guarantee as to its accuracy or completeness and any representations or warranties are expressly excluded to the fullest extent permitted by law. Readers are advised to independently verify any information on which they choose to rely. Acceptance of advertising by *Journal of NeuroInterventional Surgery* does not imply endorsement. Neither SNIS nor BMJ Publishing Group Limited shall have any liability for any loss, injury or damage howsoever arising from *Journal of NeuroInterventional Surgery* (except for liability which cannot be legally excluded).

**Copyright:** © 2020 Society of NeuroInterventional Surgery. All rights reserved; no part of this publication may be reproduced in any form without permission. *Journal of NeuroInterventional Surgery*, ISSN 1759 - 8478, BMA House, Tavistock Square, London WC1H 9JR, UK. The US annual subscription price is \$272. Airfreight and mailing in the USA by agent named Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Periodicals Postage Paid at Jamaica NY 11431.

US Postmaster: Send address changes to *Journal of NeuroInterventional Surgery*, Worldnet Shipping Inc., 156-15, 146th Avenue, 2nd Floor, Jamaica, NY 11434, USA. Subscription records are maintained at: BMJ, 12th Floor, Southgate House, Wood Street, Cardiff CF10 1GH, UK. Air Business Ltd is acting as our mailing agent.

## Contents

Volume 12 Issue 10 | JNIS October 2020

### Editor's Column

- 925 Why futile recanalization matters  
*M Chen*

### The Pandemic and Neurointervention

- 927 The professional and personal impact of the coronavirus pandemic on US neurointerventional practices: a nationwide survey  
*K M Fargen, T M Leslie-Mazwi, R P Klucznik, S Q Wolfe, P Brown, S A Ansari, G Dabus, A M Spiotta, M Mokin, A E Hassan, D Liebeskind, B G Welch, A H Siddiqui, J A Hirsch*

### Ischemic Stroke

- 932 Blood pressure reduction and outcome after endovascular therapy with successful reperfusion: a multicenter study  
*M Anadani, A S Arthur, A Alawieh, Y Orabi, A Alexandrov, N Goyal, M-N Psychogios, I Maier, J Kim, S G Keyrouz, A de Havenon, N H Petersen, A Pandhi, C B Swisher, O Inamullah, J Liman, S Kodali, J A Giles, M Allen, S Q Wolfe, G Tsivgoulis, B A Cagle, C S Oravec, B Gory, P De Marini, P Kan, S Rahman, S Richard, F A Nascimento, A Spiotta*
- 937 Effect of blood pressure parameters on functional independence in patients with acute ischemic stroke in the first 6 hours after endovascular thrombectomy  
*H-J Chu, C-H Lin, C-H Chen, Y T Hwang, M Lee, C-W Lee, S-C Tang, J-S Jeng*

- 942 Leukoaraiosis and collateral blood flow in stroke patients with anterior circulation large vessel occlusion  
*I Mark, S M Seyedsaadat, J C Benson, D F Kallmes, A A Rabinstein, W Brinjikji*

- 946 Endovascular recanalization of chronically occluded internal carotid artery  
*F Cagnazzo, P-H Lefevre, I Derraz, C Dargazanli, G Gasco, C Riquelme, R Ahmed, A Bonafe, V Costalat*

- 952 Physician, know thyself: implicit and explicit decision-making for mechanical thrombectomy in stroke  
*K M Fargen, T M Leslie-Mazwi, M Chen, J A Hirsch*

### Hemorrhagic Stroke

- 957 Cerebral aneurysm treatment trends in National Inpatient Sample 2007–2016: endovascular therapies favored over surgery  
*A S Wang, J K Campos, G P Colby, A L Coon, L-M Lin*

- 964 Endovascular versus surgical treatment for improvement of oculomotor nerve palsy caused by unruptured posterior communicating artery aneurysms  
*F Signorelli, R Pop, M Ganau, H Cebula, A Scibilia, P Gallinaro, I Zaed, J Todeschi, E Lefevre, B Nannavechia, F Severac, H A Coca, F Turzman, R Maduri, R Beaujeux, F Proust, S Chibarro*

### New Devices and Techniques

- 968 Virtual simulation with Sim&Size software for Pipeline Flex Embolization: evaluation of the technical and clinical impact  
*L Piergallini, F Cagnazzo, G Conte, C Dargazanli, I Derraz, P-H Lefevre, G Gasco, D Mantilla, C Riquelme, A Bonafe, V Costalat*
- 974 First clinical experience with the new Surpass Evolve flow diverter: technical and clinical considerations  
*E Orru, H Rice, L De Villiers, J M Klostranec, A K Wakholoo, A L Coon, I Radovanovic, H Kortman, K D Bhatia, T Krings, V M Pereira*

- 981 Preclinical safety and efficacy evaluation of the Pipeline Vantage Embolization Device with Shield Technology  
*R M Starke, J Thompson, A Pagani, A Choukrey, J M Wainwright, M F Wolf, R Jahanbekam, C Girdhar*

[MORE CONTENTS ▶](#)



This article has been chosen by the Editor to be of special interest or importance and is freely available online.



This article has been made freely available online under the BMJ Journals open access scheme.  
See <http://authors.bmjjournals.com/open-access/>



Member since 2009  
JMO666

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics

<http://publicationethics.org/>



When you have finished  
with this please recycle it

- 987** Endovascular treatment of wide-necked intracranial aneurysms using the novel Contour Neurovascular System: a single-center safety and feasibility study  
*C Y Akhunbay-Fudge, K Deniz, A K Tyagi, T Patankar*

- 993** Transradial versus transfemoral approaches for diagnostic cerebral angiography: a prospective, single-center, non-inferiority comparative effectiveness study  
*J G Stone, B M Zussman, D A Tonetti, M Brown, S M Desai, B A Gross, A Jadhav, T G Jovin, B Jankowitz*

- 999** Selective embolization of the mastoid emissary vein for pulsatile tinnitus treatment: when is it indicated?  
*M Eliezer, R K Freitas, M Fantoni, A Guedon, E Houdart*

## Basic science

- 1002** Development of an in vitro model of calcified cerebral emboli in acute ischemic stroke for mechanical thrombectomy evaluation  
*S Johnson, R McCarthy, B Fahy, O M Mereuta, S Fitzgerald, J Gaudirc, J-P Remadi, E Shotar, N-A Sourour, K Doyle, M Gilvarry, P McGarry, P E McHugh, F Clarençon*

- 1008** Preclinical evaluation of the ANCD thrombectomy device: safety and efficacy in a swine clot model  
*S Sanchez, L Bailey, R Ducore, T Andersson, R Nogueira, C Cognard, M Ribo, H Villanova, A Rios, I Galve*

## Standards

- 1014** Fetal radiation exposure risk in the pregnant neurointerventionalist  
*S H Chen, M-C Brunet*

## Neuroimaging

- 1018** Increased contrast enhancement of the parent vessel of unruptured intracranial aneurysms in 7T MR imaging  
*E A Samaniego, J A Roa, H Zhang, T R Koscik, S Ortega-Gutierrez, G Bathla, M Sonka, C Derdeyn, V A Magnotta, D Hasan*
- 1023** Fully automated intracranial aneurysm detection and segmentation from digital subtraction angiography series using an end-to-end spatiotemporal deep neural network  
*H Jin, J Geng, Y Yin, M Hu, G Yang, S Xiang, X Zhai, Z Ji, X Fan, P Hu, C He, L Qin, H Zhang*

- 1028** Comparing the outcomes of two independent computed tomography perfusion softwares and their impact on therapeutic decisions in acute ischemic stroke  
*G Bathla, S Ortega-Gutierrez, E Klotz, M Juergens, C B Zevallos, S Ansari, C E Ward, B Policeni, E Samaniego, C Derdeyn*

## Technical video

- 1034** Dual SAVE technique for mechanical thrombectomy rescue on MCA bifurcation clots  
*M Moreu, C Pérez-García, C Gómez-Escalona, S Rosati*