# Program

#### Oct 28 (Sat.) Room A

9:35 ~ 10:35 Symposium 1 Stroke "Surgery and Anatomy"

Chair: Masatou Kawashima (Department of Neurosurgery, School of Medicine, International University of Health and Welfare)

Co-host: Brainlab K.K.

#### [S1-1] The evolution of giant Aneurysm treatment

Jafar J. Jafar

NYU Neurosurgery Associates

#### [S1-2] Flameless stereotactic endoport-assisted microsurgery of a ruptured posterior lateral choroidal artery aneurysm

Fumitaka Yoshioka<sup>1</sup>, Masatou Kawashima <sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Faculty of Medicine, Saga University

<sup>2</sup>Department of Neurosurgery, Faculty of Medicine, International University of Health and Welfare

#### [S1-3] Surgical Technique and Variations of the Occipital Artery-to-Posterior Inferior Cerebellar Artery Bypass

Hiroshi Abe, Tooru Inoue

Department of Neurosurgery, Faculty of Medicine, Fukuoka University

#### Oct 28 (Sat.) Room A

#### $12:55 \sim 14:15$ Symposium 2 Forefront of Acute Ischemic Stroke Treatment in Japan

Chair: Naoyuki Uchiyama (Department of Neurosurgery, Kanazawa University Hospital, Kanazawa, Ishikawa, Japan)

Co-host: Stryker

#### [S2-1] Prehospital and preprocedural management for acute ischemic stroke on superacute phase

Ryo Yoshimura

Department of Neurosurgery, Japanese Red Cross Society Wakayama Medical Center

#### [S2-2] Experiences and improvements of endovascular clot retrieval in Kariya Toyota General Hospital

Tomotaka Ohshima

Kariya Toyota General Hospital

#### [S2-3] Treatment Result of Kanazawa Mobile Embolectomy Team for Acute Ischemic Stroke

Naoyuki Uchiyama<sup>1</sup>, Masanao Mohri<sup>1</sup>, Kouichi Misaki<sup>1</sup>, Hisato Minamide<sup>2</sup>, Takuya Watanabe<sup>3</sup>, Yukihiko Kohda<sup>4</sup>, Yoshitaka Hamada<sup>5</sup>, Yuichi Hirota<sup>6</sup>, Mitsutoshi Nakada<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Kanazawa University Hospital, Kanazawa, Ishikawa, Japan,

<sup>2</sup>Department of Neurosurgery, Kanazawa Municipal Hospital, Kanazawa, Ishikawa, Japan,

<sup>3</sup>Department of Neurosurgery, Ishikawa Prefectural Central Hospital, Kanazawa, Ishikawa, Japan,

<sup>4</sup>Department of Neurosurgery, Asanogawa General Hospital, Kanazawa, Ishikawa, Japan,

<sup>5</sup>Department of Neurosurgery, Suzu General Hospital, Suzu, Ishikawa, Japan,

<sup>6</sup>Department of Neurosurgery, Noto General Hospital, Nanao, Ishikawa, Japan

#### Oct 28 (Sat.) Room A

#### $17:00 \sim 17:30$ Symposium 3 Blister aneurym

Chair: Akira Sato (Tokyo Kyosai Hospital)

#### [S3-1] Wrap-clipping for Ruptured Blood Blister-like Aneurysms

Hiroyuki Kinouchi, Hideyuki Yoshioka, Mitsuto Hanihara, Koji Hashimoto, Kazuya Kanemaru University of Yamanashi

#### [S3-2] Surgical strategy using high flow bypass for ruptured blister-like internal carotid artery aneurysm

Katsumi Takizawa

Department of neurosurgery, Japanese Red Cross Asahikawa Hospital

#### [S3-3] Endovascular treatment for ruptured blister-like aneurysm

Morito Hayashi, Satoshi Iwabuchi, Masashi Ikota, Jyunya Iwama, Satoshi Fujita, Norihiko Saito, Haruo Nakayama, Nozomi Hirai, Kazuya Aoki Department of Neurosurgery, Toho University Ohashi medical center, Tokyo, Japan

#### Oct 28 (Sat.) Room B

#### $9:35 \sim 10:35$ Symposium 4 AVM • AVF

Chairs: Michael T. Lawton (Professor, Barrow Neurological Institute)

Hiroki Kurita (Department of Cerebrovascular Surgery, International Medical Center, Saitama Medical University.)

#### [S4-1] Tips, bases, and pitfalls in current AVM surgery in hybrid OR: operative nuances

Hiroki Kurita<sup>1</sup>, Yuichiro Kikkawa<sup>1</sup>, Ririko Takeda<sup>1</sup>, Tomoya Kamide<sup>1</sup>, Kaima Suzuki<sup>1</sup>, Aoto Shibata<sup>1</sup>, Toshiki Ikeda<sup>2</sup>, Hidetoshi Ooigawa<sup>3</sup>

Department of Cerebrovascular Surgery, International Medical Center, Saitama Medical University.

Department of Neurosurgery, Saitama Cardiovascular & Respiratory Center., <sup>3</sup>Department of Neurosurgery, Teikyo University.

### Surgical treatment of Brain AVMs in the post ARUBA era

Yasushi Takagi

[S4-2]

Department of Neurosurgery, Kyoto University Graduate School of Medicine

#### [S4-3] Long-term outcomes of gamma knife radiosurgery for cerebral arteriovenous malformations with more than 10-year follow-up

Hirotaka Hasegawa<sup>1</sup>, Shunya Hanakita<sup>1</sup>, Masahiro Shin<sup>1</sup>, Mariko Kawashima<sup>1</sup>, Wataru Takahashi<sup>2</sup>, Osamu Ishikawa<sup>1</sup>, Hirofumi Nakatomi<sup>1</sup>, Nobuhito Saito<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, The University of Tokyo Hospital, <sup>2</sup>Department of Radiology, The University of Tokyo Hospital

#### [S4-4] Role of Embolization for the treatment of Brain Arteriovenous Malformations

Shinya Kohyama, Fumitaka Yamane, Toshihiro Otsuka, Satomi Mizuhashi, Azusa Yonezawa, Hiroki Kurita Department of Neurosurgery, Saitama Medical University International Medical Center

#### Oct 29 (Sun.) Room A

#### $9:10 \sim 10:10$ Symposium 5 Treatment strategy and outcome for brain AVM in the Onyx era

Chair: Kazuhiko Nozaki (Shiga University of Medical Science Hospital)

Co-host: Medtronic Japan Co.,Ltd.

#### [S5-1] Combined treatment of cerebral AVM----experience of Huashan Hospital

Bin Xu

Huashan Hospital, Fudan University, Shanghai.

## [S5-2] Therapeutic strategy and results of microsurgery for unruptured arteriovenous malformations (AVMs) in multimodal treatment / ARUBA aftermath era.

Hiroki Kurita<sup>1</sup>, Yuichiro Kikkawa<sup>1</sup>, Ririko Takeda<sup>1</sup>, Tomoya Kamide<sup>1</sup>, Toshiki Ikeda<sup>2</sup>, Hidetoshi Ooigawa<sup>3</sup>

<sup>1</sup>Department of Cerebrovascular Surgery, International Medical Center, Saitama Medical University.,

<sup>2</sup>Department of Neurosurgery, Saitama Cardiovascular & Respiratory Center., <sup>3</sup>Department of Neurosurgery, Teikyo University.

#### [S5-3] Endovascular Management of Ruptured Brain Arteriovenous Malformations

Bum-Tae Kim, Jong-Hyun Park, Dong Seong Shin, Seok-Mann Yoon, Sukh Que Park

Dep. Neurosurgery Soonchunhyang University Hospital, Korea

#### [S5-4] Surgical and endovascular management for brain AVM

Hidenori Endo<sup>1</sup>, Yasushi Matsumoto<sup>2</sup>, Toshiki Endo<sup>3</sup>, Kenichi Sato<sup>2</sup>, Miki Fujimura<sup>3</sup>, Teiji Tominaga<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Tohoku University Graduate School of Medicine, Sendai, Japan,

<sup>2</sup>Department of Neuroendovascular therapy, Kohnan Hospital, Sendai, Japan, <sup>3</sup>Department of Neurosurgery, Kohnan Hospital, Sendai, Japan

#### Oct 29 (Sun.) Room A

#### $14:00 \sim 15:00$ Symposium 6 Cerebrovascular disease in children

Chair: Miki Fujimura (Department of Neurosurgery, Kohnan Hospital)

Erion Musabelliu (Fellow Neurosurgeon at Partners in Health Care Clinic and Foundation)

Co-host: BEAR Medic Corporation

#### [S6-1] "Non-moyamoya" intracranial arteriopathy in Japanese children

Jun C. Takahash

Department of Neurosurgery, National Cerebral and Cardiovascular Center

#### [S6-2] Endovascular therapy of pediatric intracranial arteriovenous shunts

Shinsuke Sato<sup>1,2</sup>, Yasunari Niimi<sup>2</sup>, Yoshikazu Okada<sup>1</sup>, Tatsuki Mochizuki<sup>1</sup>, Shogo Shima<sup>1</sup>, Yuuichi Mochizuki<sup>1,2</sup>, Tatuya Inoue<sup>1,2</sup>, Kentarou Kuwamoto<sup>1,2</sup>

<sup>1</sup>Department of Neurosurgery, St.Luke's International Hospital, <sup>2</sup>Department of Neuroendovascular Therapy, St.Luke's International Hospital

#### [S6-3] Revascularization surgery for infant moyamoya disease

Akitsugu Kawashima<sup>1</sup>, Yasuo Aihara<sup>2</sup>, Koji Yamaguchi<sup>2</sup>, Masaru Terai<sup>3</sup>, Hiromichi Hamada<sup>4</sup>, Yoshikazu Okada<sup>5</sup>, Takakazu Kawamata<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Tokyo Women's Medical University, Yachiyo medical center, Chiba, Japan,

<sup>2</sup>Department of Neurosurgery, Tokyo Women's Medical University, Tokyo, Japan,

<sup>3</sup>Department of Pediatrics, Chiba Kaihin Municipal Hospital, Chiba, Japan,

<sup>4</sup>Department of Pediatrics, Tokyo Women's Medical University, Yachiyo medical center, Chiba, Japan,

<sup>5</sup>Department of Neurosurgery, St. Luke's International Hospital, Tokyo, Japan

#### [S6-4] The perfusion changes after bypass surgery in moyamoya disease.

Bin Xu

Huashan Hospital, Fudan University, Shanghai.

#### Oct 29 (Sun.) Room A

#### $15:05 \sim 16:05$ Symposium 7 Moyamoya disease: Complication avoidance in revascularization surgery

Chair: Toru Iwama (Department of Neurosurgery, Gifu University Graduate School of Medicine)

#### [S7-1] Surgical management of pediatric moyamoya disease: microsurgical techniques and perioperative management

Akitsugu Kawashima<sup>1</sup>, Yasuo Aihara<sup>2</sup>, Koji Yamaguchi<sup>2</sup>, Masaru Terai<sup>3</sup>, Hiromichi Hamada<sup>4</sup>, Yoshikazu Okada<sup>5</sup>, Takakazu Kawamata<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Tokyo Women's Medical University, Yachiyo medical center, Chiba, Japan,

<sup>2</sup>Department of Neurosurgery, Tokyo Women's Medical University, Tokyo, Japan,

<sup>3</sup>Department of Pediatrics, Chiba Kaihin Municipal Hospital, Chiba, Japan,

<sup>4</sup>Department of Pediatrics, Tokyo Women's Medical University, Yachiyo medical center, Chiba, Japan,

 $^{\mathtt{5}}\mathsf{Department}$  of Neurosurgery, St. Luke's International Hospital, Tokyo, Japan

### [\$7-2] Long-term outcomes after combined revascularization surgery in adult moyamoya disease

Jeong Eun Kim

Department of Neurosurgery, Seoul National University College of Medicine

# [S7-3] Efficacy of direct/indirect combined revascularization surgery for adult moyamoya disease: Significance of perioperative management based on hemodynamic study

Miki Fujimura<sup>1</sup>, Teiji Tominaga<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Kohnan Hospital, Sendai, <sup>2</sup>Department of Neurosurgery, Tohoku Univeristy, Sendai

#### Oct 29 (Sun.) Room B

#### $9:10 \sim 9:40$ Symposium 8 Intraoperative support equipment

Chair: Toshihiko Kuroiwa (Department of Neurosurgery, Osaka Medical College)

Co-host: NIKKISO CO., LTD.

#### [S8-1] Intraoperative computed tomography (iCT) for neurosurgery

Shinji KAWABATA, Naokado IKEDA, Motomasa FURUSE, Toshihiko KUROIWA

Department of Neurosurgery, Osaka Medical College

#### [S8-2] Continuous blood glucose monitoring may detect carotid occlusion intolerance during carotid artery stenting

Motomasa Furuse<sup>1</sup>, Ryo Hiramatsu<sup>1</sup>, Ryokichi Yagi<sup>1</sup>, Noriaki Matsubara<sup>1</sup>, Naokado Ikeda<sup>1</sup>, Naosuke Nonoguchi<sup>1</sup>, Shinji Kawabata<sup>1</sup>, Shigeru Miyachi<sup>2</sup>, Toshihiko Kuroiwa<sup>1</sup>

<sup>1</sup>Osaka Medical College, <sup>2</sup>Aichi Medical University

# [S8-3] Developing Technique for Peri-operative Assistance with Three-dimensional Virtual and Augmented Reality Images for cerebrovascular Surgery.

Yoshihide Katayama<sup>1</sup>, Naokado Ikeda<sup>1</sup>, Shinji Kawabata<sup>1</sup>, Takahiro Fujishiro<sup>1</sup>, Motomasa Furuse<sup>1</sup>, Yoji Tamura<sup>1</sup>, Tomiki Itamiya<sup>2</sup>, Toshihiko Kuroiwa<sup>1</sup>

<sup>1</sup>Department of Neurosurgery and Endovascular Neurosurgery, Osaka Medical College,

<sup>2</sup>Department of Information of Media Studies, Aichi University of Technology, School of Engineering

#### Oct 29 (Sun.) Room B

#### $9:45\sim10:45$ Symposium 9 Keyhole strategy for cerebrovascular lesions

Chairs: Michael T Lawton (Professor, Barrow Neurological Institute)

Kentaro Mori (Professor, National Defense Medical College, Japan)

#### [S9-1] Key hole approach for non-ruptured Acom aneurysms.

Shinsuke Irie, Ayaka Sasagawa, Kei Ito, Manabu Sumiyoshi, Osamu Saito, Toru Inagaki, Hiroshi Nakagawa, Koji Saito Department of Neurosurgery, Kushiro Kojinkai Memorial Hospital

#### [S9-2] Minimally invasive cerebrovascular surgery using superciliary keyhole approaches

Jaechan Park

Department of Neurosurgery, Kyungpook National University Hospital, Daegu, Republic of Korea,

#### [S9-3] Validation of effectiveness of keyhole clipping in elderly patients with unruptured intracranial aneurysms: Lessons from 260 cases

Kentaro Mori, Kojiro Wada, Naoki Otani, Arata Tomiyama, Terushige Toyooka, Satoru Takeuchi

Department of Neurosurgery, National Defense Medical College, Saitama, Japan

#### [S9-4] Purely endoscopic port approach for clipping of anterior circulation aneurysms

Ivan Radovanovic

Assistant Professor Division of Neurosurgery Toronto Western Hospital University Health Network and University of Toronto Scientist, Toronto Western Research Institute

#### [\$9-5] Keyhole Approaches to Aneurysms

Michael T Lawton

Barrow Neurological Institute

#### Oct 29 (Sun.) Room B

#### $14:00 \sim 15:30$ Symposium 10 Computational Fluid Dynamics

Chairs: Fujimaro Ishida (Department of Neurosurgery, Mie Chuo Medical Center, NHO)

Toru Satoh (Department of Neurological surgery, Ryofukai Satoh Neurosurgical Hospital)

Co-host: AMIN,Ltd

#### [\$10-1] Computational Fluid Dynamics for Assisting Neurosurgery: Basic Principles

Takanobu Yagi Waseda University

#### [S10-2] Clinical Application of Computational Fluid Dynamics in Cerebral Aneurysms

Kuniyasu Niizuma<sup>1</sup>, Shin-ichiro Sugiyama<sup>2</sup>, Teiji Tominaga<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Tohoku University Graduate School of Medicine, Sendai, Japan,

<sup>2</sup>Department of Neuroanesthesia, Kohnan Hospital, Sendai, Japan

#### [S10-3] Endovascular management of cerebral aneurysms based on Flow dynamics

Masaaki Shoiima

Department of Neurosurgery, Saitama Medical University General Hospital

# [S10-4] Hemodynamic features for offending vessels at neurovascular contact in patients with trigeminal neuralgia and hemifacial spasms; Application of Hemoscope

Toru Satoh<sup>1</sup>, Keisuke Onoda<sup>2</sup>, Masahiro Kameda<sup>3</sup>, Tomotsugu Ichikawa<sup>3</sup>, Isao Date<sup>3</sup>

<sup>1</sup>Department of Neurological surgery, Ryofukai Satoh Neurosurgical Hospital,

<sup>2</sup>Department of Neurological surgery, Okayama Red Cross General Hospital,

<sup>3</sup>Department of Neurological surgery, Okayama University Postgraduate Medical School

### **Luncheon Seminar**

#### Oct 28 (Sat.) Room A

11:50  $\sim$  12:50 Luncheon Seminar 1 Cerebrovascular Aneurysm Clipping and Selection Method of Clip Type

Chair: Toru Nishi (Depaetment of Neurosurgery, Saiseikai Kumamoto Hospital)

Co-host: B Braun Aesculap Japan Co., Ltd

#### [LS1-1] The Orthodox Techniques of Cerebrovascular Aneurysm Clipping Surgery and Selection Method of Clip Type

Tsuyoshi Izumo

Department of Neurosurgery, Nagasaki University Graduate School of Biomedical Sciences

#### [LS1-2] Case- and Clip selection in Aneurysm Surgery

Joshua Bederson The Mount Sinai Hospital

#### Oct 28 (Sat.) Room B

 $11:50 \sim 12:50$  Luncheon Seminar 2

Chair: Michiharu Morino (Honorary President, Kumagaya General Hospital)

Co-host: Eisai CO., Ltd

#### [LS2] Current issues in medical and surgical treatment for epilepsy

Takamichi Yamamoto

Vice Executive Director of the Seirei Hamamatsu General Hospital

#### Oct 29 (Sun.) Room A

#### $11:55 \sim 12:55$ Luncheon Seminar 3

Chairs: Yoko Kato (Professor and Chair, Department of Neurosurgery, Fujita Health University Banbuntane Hotokukai Hospital Head of

Fujita Banbuntane Stroke Center)

Abdessamad El Ouaha (Department of Neurosurgery, Hopital des Specialites, Ibn Sina University Medical Center, Rabat)

Co-host: TOSHIBA MEDICAL SYSTEMS CORPORATION

#### [LS3-1] Surgical management of giant solid cerebellar hemagioblastomas

Suresh Nair

Sree Chitra Tirunal Institute for Medical Sciences and Technology

#### [LS3-2] Subtemporal approach? for basilar tip aneurysms

Juha Hernesniemi

Department of Neurosurgery, Helsinki University Hospital and University of Helsinki, Finland

### **Afternoon Seminar**

#### Oct 28 (Sat.) Room A

 $14:20 \sim 15:20$  Afternoon Seminar 1 Front-line of AIS Therapy in Japan

Chair: Ichiro Nakahara (Department of Comprehensive Strokology, Fujita Health University, Aichi, Japan)

Co-host: Medico's Hirata Inc.

#### [AS1-1] Current status of mechanical thrombectomy and telestroke in rural Japan

Masunari Shibata<sup>1</sup>, Takanori Sano<sup>2</sup>, Kazuto Kobayashi<sup>1</sup>, Kota Maekawa<sup>1</sup>, Masaru Seguchi<sup>1</sup>, Hiroshi Tanemura<sup>2</sup>, Yotaro Hitano<sup>2</sup>, Hideki Nakajima<sup>2</sup>, Fumitaka Miya<sup>2</sup>

<sup>1</sup>Department of Neuroendvascular therapy, Stroke Center, Japanese Red Cross Ise Hospital, <sup>2</sup>Department of Neurosurgery, Stroke Center,

Japanese Red Cross Ise Hospital

#### [AS1-2] Each technique in the Penumbra system

MASATAKA TAKEUCHI

Department of Neurosurgery, Seishou hospital, Kanagawa, Japan

#### Oct 28 (Sat.) Room B

#### $14:20 \sim 15:20$ Afternoon Seminar 2

Chairs: Yoko Kato (Professor and Chair, Department of Neurosurgery, Fujita Health University Banbuntane Hotokukai Hospital Head of

Fujita Banbuntane Stroke Center)

Joshua Bederson (The Mouni Sinal Health System)

Co-host: Carl Zeiss Meditec Co., Ltd.

# [AS2-1] Advantages and pitfalls of intraoperative indocyanine green-based videoangiography and our first experience with the next-generation microscope "KINEVO 900"

Soichi Oya, Toru Matsui

Saitama Medical Center/University

#### [AS2-2] Early Experience with KINEVO 900

Michael T Lawton

Barrow Neurological Institute, Phoenix, Arizona - USA

# **Morning Seminar**

#### Oct 29 (Sun.) Room A

 $8:00 \sim 9:00$  Morning Seminar 1

Chair: Shigenori Takebayashi (Department of Neurosurgery, Nagoya Central Hospital)

Co-host: Daiichi-Sankyo Co., LTD.

[MS1] Cerebrovascular disease and Epilepsy

Yasukazu Kajita

National Hospital Organization Nagoya Medical Center

Oct 29 (Sun.) Room B

 $8:00 \sim 9:00$  Morning Seminar 2

Chair: Hiroyuki Kinouchi (University of Yamanashi)

Co-host: MIZUHO Corporation

[MS2] Utility of a novel surgical microscope laser light source and its application with integrated dual-image videoangiography (DIVA)

Jun Sakuma<sup>1</sup>, Taku Sato<sup>1</sup>, Kyoichi Suzuki<sup>2</sup>, Mudathir S Bahkit<sup>1</sup>, Kiyoshi Saito<sup>1</sup> Department of Neurosurgery, Fukushima Medical University, Fukushima, Japan, <sup>2</sup>Department of Neurosurgery, Fukushima Red Cross Hospital, Fukushima, Japan

# **Nursing Neurosurgery Session Symposium**

#### Oct 28 (Sat.) Room C

14:00 ~ 14:55 Nursing Neurosurgery Session 急性期から在宅まで脳卒中において求められる看護師 Chair: 齊藤 泉 (公益社団法人愛知県看護協会 脳卒中リハビリテーション看護認定看護師教育課程)

[NS-1] **急性期から在宅まで脳卒中において求められる看護師 急性期病棟を担当している立場から** *櫻田 浩* 社会医療法人財団 慈泉会 相澤病院

[NS-2] 回復期リハビリテーション病棟に求められる看護師〜多職種連携と生活再構築の支援〜 佐藤 梓

医療法人珪山会 鵜飼リハビリテーション病院

[NS-3]脳卒中において求められる看護師の役割~在宅療養~<br/> 小津 美智子だいどうクリニック 地域チーム医療・教育センター 在宅診療部

[NS-4] 脳卒中に関連する診療看護師(NP)の役割 酒井 博崇 藤田保健衛生大学病院 中央診療部 FNP室

### **Nursing Neurosurgery Session**

#### Oct 28 (Sat.) Room C

 $8:30 \sim 10:00$  Nursing Neurosurgery Session Surgical Treatment and Stroke Nursing (English session)

Chair: Muneyoshi Yasuda (Ichinomiyanishi Hospital)

[N-1] ICG Role; Neurosurgery Nursing Aspect

Hendra Wijaya O, July J, Wahjoepramono EJ, Harsan , Yunus , J.Hendriansyah L

Departement Neurosurgery Siloam Lippo Village - Indonesia

[N-2] Clipping of Cerebral Aneurysm: Neurosurgery Perioperative Nursing

Responsibility in Hospital Kuala Lumpur, Malaysia

Rozleen Binti Radzi

Registered Nurse Neurosurgery Operation Theatre Hospital Kuala Lumpur

[N-3] Surgical Strategies and Management of Cavernous Malformations

Melvin M Avuste

Prince of Wales Private Hospital, Sydney Australia

[N-4] Brain Aneurysm – Surgical Techniques and Treatments

Gemma Goopio Avuste

Prince of Wales Private Hospital Australia

[N-5]

Withdrawn

[N-6] THE ROLES OF NURSES IN NEURO CRITICAL PATIENT

Ch C Sri Budi Rahayu<sup>1</sup>, Julius July TBS<sup>1</sup>, Harsan Harsan Harsan Harsan Harsan TBS<sup>3</sup>, Lutfy Hendriansyah TBS<sup>4</sup>,

Eka Julianta WahvoePramono<sup>5</sup>

<sup>1</sup>Ch C Sri Budi Rahayu, <sup>2</sup>Julius July, <sup>3</sup>Harsan, <sup>4</sup>Wahyoepramono EJ, <sup>5</sup>Eka J WahyoePramono

[N-7] Surgical management of Cerebral Aneurysm: Perioperative Nurses Perspective

Caili Lin

Lin Caili

[N-8] DECOMPRESSIVE CRANIECTOMY: NEUROSURGERY PERIOPERATIVE NURSING RESPONSIBILITY

Noorliana Binti Noordin

Nurse Manager Neurosurgery Operation Theatre Kuala Lumpur Hospital

[N-9] Research on how to get knowledge and skill by using video material for a scrub nurse with regards to surgical clipping

Ayumi Nakayama, Yuhei Toyozumi, Sawako Nakashima, Akiko Aihara

Department of nursing service, Banbuntane Hotokukai Hospital, Fujita Health University, Nagoya, Japan

Oct 28 (Sat.) Room C

 $10:10 \sim 11:40$  Nursing Neurosurgery Session Stroke Nursing care (English session)

Chair: Nobuko Okubo (St. Luke's International University)

[N-10] MANAGING THE STROKE PATIENT – A CASE PRESENTATION

YFF YIT CHENG

DEPARTMENT OF NEUROSURGERY, KUALA LUMPUR HOSPITAL MALAYSIA

[N-11] DELIRIUM IN NEUROLOGICAL PATIENTS AND SOME INVOLVED FACTORS IN NEUROSURGERY DEPARTMENT 1

VIET DUC UNIVERITY HOSPITAL, HANOI, VIETNAM

Hanh Thi Phung <sup>1,2</sup>, Hang Thi Nguyen<sup>2</sup>, Ngan Thi Nguyen<sup>2</sup>, He Van Dong<sup>2</sup>

<sup>1</sup>Faculty of Nursing and Midwifery, Hanoi Medical University, Ha Noi, Vietnam.

<sup>2</sup>Neurosurgery Department 1, Viet Duc University hospital, Hanoi, Vietnam

[N-12] NURSING CARE FOR PATIENTS WITH STROKE AT NEUROSUGERY CENTER, VIET DUC UNIVERSITY HOSPITAL IN RECENT YEARS

Anh Ngoc Dao

VietDuc University Hospital

### **Nursing Neurosurgery Session**

# [N-13] AGITATION, SOME RELATED FACTORS, EFFECTIVENESS OF SOME WAYS OF USE OF SEDATIVE DRUGS IN PATIENTS WITH TBI IN NEUROSURGERY DEPARTMENT I, VIET DUC HOSPITAL.

Hang Thi Nguyen<sup>1</sup>, Ngan Thi Nguyen<sup>1</sup>, Hanh Thi Phung<sup>2</sup>, He Van Dong<sup>1</sup>

<sup>1</sup>Viet Duc University Hospital, <sup>2</sup>Hanoi Medical University

#### [N-14] QUALITY OF LIFE AMONG HEMORRHAGIC STROKE SURVIVORS IN CHINA: A LONGITUDINAL OBSERVATIONAL STUDY

Yan Jiang 1,2, Lijuan Duan 1, Wei Zhu 2

<sup>1</sup>west china hospital, sichuan university, chengdu, sichuan, P.R.China,

<sup>2</sup>west china school of nursing, sichuan university, chengdu, sichuan, P.R.China

#### [N-15] Constraint Induced Movement Therapy: A Rehabilitative Technique for Upper Limb Weakness.

Fiona Jane Nation

Registered Nurse

#### [N-16] DETERMINANTS OF QUALITY OF LIFE IN HEMORRHAGIC STROKE SURVIVORS AFTER SURGERY:A 1-YEAR FOLLOW-UP STUDY

Weniina Cai

Sichuan University

#### [N-17] Caregiving burden in Chinese caregivers of patients with hemorrhagic stroke at discharge and 1-year after stoke.

Nei 7hu

West China School of Medicine, Sichuan University

#### [N-18] LIFE AFTER STROKE···.

KHATIJAH BEEVI M.S.M. SULTAN DULKARUNAIN

DEPARTMENT OF NEUROSURGERY KUALA LUMPUR HOSPITAL MALAYSIA

#### Oct 28 (Sat.) Room C

 $13:00\sim13:50$  Nursing Neurosurgery Session 脳卒中看護(Japanese session)

Chair: 横井 靖子 (愛知県看護協会)

#### [N-19] 早期リハビリテーション介入により意識レベルの改善が見られた事例

春山 七海, 竹内 奈美, 原 久美, 相原 晶子藤田保健衛生大学 坂文種報德會病院

#### [N-20] 脳神経疾患患者への退院前・退院後訪問の必要性についての検討

林和弥,西川圭二,谷川阿紀,真野惠子

藤田保健衛生大学病院看護部

#### [N-21] 脳卒中急性期患者の栄養プロトコル使用の有効性の検討

隈本伸生<sup>1</sup>,渡邊俊一<sup>1</sup>,千原英夫<sup>2</sup>,内田裕美<sup>3</sup>

<sup>1</sup>一般財団法人平成紫川会小倉記念病院 看護部, <sup>2</sup>一般財団法人平成紫川会小倉記念病院 脳神経外科,

3一般財団法人平成紫川会小倉記念病院 栄養課

#### [N-22] 当院脳神経外科病棟における脳卒中患者の覚醒刺激へのアプローチ

*櫻 梨沙 , 天木 美和 , 石黒 朝子 , 櫻木 千恵子 , 坂本 ひとみ , 相原 晶子*藤田保健衛生大学坂文種報德會病院 看護部

#### [N-23] 脳卒中患者に対するメンテナンスリハビリテーション入院の効果

杉山慎太郎

市立長浜病院 脳神経外科·神経内科病棟

#### Oct 28 (Sat.) Room C

 $16:35 \sim 18:50$  Young Neurosurgery Session Aneurysm 1

#### [YNS-1] Preaccessory transjagular-tubercle route: A novel access for ventrocaudal PICA aneurysms

ALHUSAIN NAGM<sup>1,2</sup>, Tetsuyoshi Horiuchi<sup>1</sup>, Kazuhiro Hongo<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Shinshu University School of Medicine, Matsumoto, Japan,

<sup>2</sup>Department of Neurosurgery, Al-Azhar University Faculty of Medicine-Nasr city, Cairo, Egypt

#### [YNS-2] Management of Complex Intracranial Aneurysms; Case Presentation and Review of Literature

Andrew Nyaoncha Nyangau

COSECSA/Southmead Hospital, North Bristol NHS Trust UK

#### [YNS-3] Left P com aneurysm in 72 year old Myanmar lady

Aung Thurein Win, Win Myaing, Kyi Hlaing

#### [YNS-4] Are all PICA aneurysm's dissecting in nature: review of 16 cases?

Christel Arnold-Day, Alan Taylor, David Le Feuvre

Groote Schuur Hospital, University of Cape Town, Neurosurgery department

#### [YNS-5] POST TRAUMATIC BILATERAL DACA ANEURYSM: A CASE REPORT

Faizul Hizal Ghazali

Department of Neurosurgery, Sarawak General Hospital, Kuching, Malaysia

#### [YNS-6] Right MCA Anreurysm Clipping

NANG SAW MYAT HNIN AYE. KYI HLAING. WIN MYAING

#### [YNS-7] Outcome of aneurysm clipping in septuagenarians - a retrospective analysis in a basic neurovascular unit.

RAJA K KUTTY, ANILKUMAR PEETHAMBARAN, RAJMOHAN B PRABHAKAR GOVERNMENT MEDICAL COLLEGE THIRUVANANTHAPURAM, KERALA, INDIA,

#### [YNS-8] 57 years old lady with left ICA bifurcation Aneurysm

Su Myat Mo, Win Myaing, Kyi Hlaing

#### [YNS-9] Ruptured anterior communicating aneurysm presenting early recurrence after complete clipping: a case report

Yumi Ko, Yasushi Motoyama, Shuichi Yamada, Young-Su Park, Hiroyuki Nakase Department of Neurosurgery, Nara Medical University

#### [YNS-10] Aneurysm and AVM surgeries in North Okkalapa Hospital, Yangon, Myanmar

Kyi Hlaing, Win Myaing

#### Oct 28 (Sat.) Room C

#### 16:35 ∼ 18:50 Young Neurosurgery Session AVM

#### [YNS-11]

Withdrawn

#### [YNS-12] Vein of Galien Aneurysm. A case report and literature review.

Zarina A Shabhay, Leila Boutiah, Lotfi Boublata, Mohamed S Benachour, Djeinaba Bah, Souad Bakhti EHS Ali Ait Idir, Algiers, Algeria

#### [YNS-13] Uncommon Cavernomas Locations In The Brain

Sabrina Bachir, Loucif Houari, A.Halim Morsli, Tahar Ben Bouzid Department of Neurosurgery, Bab El Oued Hospital, Algiers.

#### [YNS-14] Cavernoma in 11years old girl

Aye Mya Phyu, Win Myaing, Kyi Hlaing

### YNS

#### [YNS-15] AVM in pregnancy- Current status

BRAJESH KUMAR<sup>1</sup>, SAI KALYAN SAVARAPU<sup>2</sup>, MOHAMMAD AHAMED ANASARI<sup>3</sup>, YAMADA YASUHIRO<sup>4</sup>, YOKO KATO<sup>4</sup> CONSULTANT NEUROSURGEON, RUBAN HOSPITAL, PATLIPUTRA, PATNA-800013,

<sup>2</sup>DEPARTMENT OF NEUROSURGERY, GANDHI MEDICAL COLLEGE, HYDERABAD,

<sup>3</sup>DEPARTMENT OF NEUROSURGERY, HAMDARD INSTITUTE OF MEDICAL SCIENCES AND RESEARCH, NEW DELHI,

<sup>4</sup>DEPARTMENT OF NEUROSURGERY, FUJITA HEALTH UNIVERSITY, BANBUNTANE HOTOKUKAI HOSPITAL, AICHI, JAPAN,

#### [YNS-16] Surgical treatment of spinal dural arterio venous fistula : our experience

IBRAHIM ASSOUMANE, LOUCIF HOUARI, SABRINA BACHIR, ABDELHALIM MORSLI, TAHER BENBOUZID CHU BAB EL OUED ALGIERS ALGERIA

#### Oct 28 (Sat.) Room C

 $16:35 \sim 18:50$  Young Neurosurgery Session Endovascular

#### [YNS-17] Endovascular treatment of acute ischemic stroke in intrahospital patients

Marat Kulmirzayev, Yerbol Makhambetov, Assylbek Kaliyev, Yerkin Medetov, Zada Gapbas National Centre for Neurosurgery

#### [YNS-18] Coil Embolization of Intracranial Aneurysms, Our initial experience of 68 cases in the field of Endovascular Neurosurgery.

MD ROKIBUL ISLAM, MD. SUMON RANA, MD. SHAFIQUL ISLAM

#### [YNS-19]

Withdrawn

#### [YNS-20] Intra-arterial Thrombolysis in The Era of Mechanical Thrombectomy: Is it still worthdoing?

Nurullah Armyta Tasrif, Hanif Tobing, Djoko Linggo Listiono Pertamina Central Hospital

#### [YNS-21]

Withdrawn

#### Oct 28 (Sat.) Room C

 $16:35 \sim 18:50$  Young Neurosurgery Session Other

#### [YNS-22] Surgical Management of Medulla Oblongata Hemangioblastomas in One Institution: Analysis of 82 Cases.

Xuesong Liu

The department of Neurosurgery in West China Hospital, Sichuan University

#### [YNS-23] Primary brain melanoma

zuhair hawsawi

#### [YNS-24] INTRA ORBITAL SCHWANNOMA, A CASE REPORT AND REVIEW OF LITERATURE

ZARINA ALI SHABHAY, LOTFI BOUBLATA, LEILA BOUTIAH, DJEINABA BAH, SOUAD BAKHTI EHS ALI AIT IDIR, ALGIERS, ALGERIA

#### [YNS-25] Von Hippel-Lindau Disease: an Evaluation of Natural History and Functional Disability

Alberto Feletti<sup>1</sup>, Giuseppe Opocher<sup>2,3</sup>, Giacomo Pavesi<sup>1</sup>

<sup>1</sup>Department of Neurosciences, Neurosurgery Unit, NOCSAE University Hospital, Modena, Italy,

<sup>2</sup>Familial Cancer Clinic and Oncoendocrinology, Veneto Institute of Oncology, IRCCS, Padova, Italy,

<sup>3</sup>Department of Medicine-DIMED, University of Padova, Italy

**YNS** 

#### [YNS-26] Decompressive Hemicraniectomy in MCA malignant infarction: clinical outcome and selection criteria in Modena Registry

Livio Picchetto<sup>1</sup>, Andrea Zini<sup>1</sup>, Silvia Berlucchi<sup>2</sup>, Marcella Maagoli<sup>3</sup>, Stefano Vallone<sup>3</sup>, Guido Bigliardi<sup>1</sup>, Laura Vandelli<sup>1</sup>, Giacomo Pavesi<sup>2</sup>, Alberto Feletti<sup>2</sup>

<sup>1</sup>Stroke Unit, Neurology Department, Azienda Ospedaliero-Universitaria di Modena, Italy,

<sup>2</sup>Department of Neurosurgery, Azienda Ospedaliero-Universitaria di Modena, Italy,

<sup>3</sup>Department of Neuroradiology, Azienda Ospedaliero-Universitaria di Modena, Italy

#### [YNS-27] Pituicytoma case report and review management literatures

Mahmood Al Hattali, Imaduddin Kanaan, Mohammed Dababo King Faisal Specialist Hospital and Reasearch Centre, Riyadh , KSA

#### Oct 28 (Sat.) Room A

 $8:10\sim9:30$  Session 1 Controversies in management of cerebral AVMs/ vascular malformations- Future in brain and spinal AVMs

#### [1-A-1] Surgical Management of AVMs

Michael T Lawton

Barrow Neurological Institute

#### [1-A-2] 30 years and 500 AVM surgeries later. What have we learnt?

Jafar J. Jafar

NYU Neurosurgery Associates

#### [1-A-3] Functional preservation surgery for high grade AVMs & brainstem cavernous malformations

Hirofumi Nakatomi

University of Tokyo, Department of neurosurgery

#### [1-A-4] Surgical treament of cerebral AVMs in the speech area: experience on 63 patients

Alberto Pasqualin<sup>1</sup>, Pietro Meneghelli<sup>1</sup>, Piergiuseppe Zampieri<sup>2</sup>

<sup>1</sup>Section of Vascular Neurosurgery, Institute of Neurosurgery, Verona University and City Hospital,

<sup>2</sup>Service of Neuroradiology, Verona University and City Hospital

#### [1-A-5] Controlled CBF reduction during surgery of complex intracranial aneurysms:

Increasing experience with intraoperative rapid ventricular pacing

Volker Seifert

#### [1-A-6] Interdisciplinary treatment of complex carotid bifurcation aneurysms

Volker Seifert

#### [1-A-7] Microsurgical Clipping Techniques and Outcomes for Paraclinoid Internal Carotid Artery Aneurysms

Tomoya Kamide, Yuichiro Kikkawa, Kouichi Uramaru, Shunsuke Ikeda, Kaima Suzuki, Ririko Takeda, Hiroki Kurita Saitama medical university International medical Center

#### [1-A-8] Why we had to do a Consensus Conference on AVM treatment

Marco Cenzato<sup>1</sup>, Edoardo Boccardi<sup>2</sup>

<sup>1</sup>Department of Neurosurgery - Ospedale Niguarda - Milano Italy, <sup>2</sup>Department of Neuroradiology - Ospedale Niguarda - Milano Italy

#### Oct 28 (Sat.) Room A

 $10:40 \sim 11:40$  Session 2 Avoidance of complications in cerebral aneurysm surgery

#### [1-A-9] Surgical Management of Complex Aneurysms

Michael T Lawton

Barrow Neurological Institute

#### [1-A-10] Surgery of Complex Difficult Aneurysms not Amenable to Endovascular Treatment

Takanori Fukushima

Duke University Medical Center Carolina Neuroscience Institute

#### [1-A-11] Operating technology of complex aneurysm

Jiajia Zheng

Shanghai Punan Hospital

#### [1-A-12] Giant aneurisms: surgery, embolization or observation?

Eka J. Wahjopramono, Yesaya , Julius , Harsan , Lutfi , Binsar , Made , Ferry , Firdaus , Evelyn , Ronny , Maximilan , Eko , Onnie , Wily , Gde , Donny , Bagus

Faculty of Medicine - Pelita Harapan University, Neuroscience Center - Neurosurgery Department - Siloam Hospitals

#### [1-A-13] Avoidance and Management of Complications in Aneurysms Surgery

Gerardo Dizon LEGASPI

# [1-A-14] Current Trends in Management of Poor Grade Subarachnoid Hemorrhage in Japan. Post Hoc Analysis of Study for the Modified WFNS SAH Grading System

Hitoshi Kobata<sup>1</sup>, Akira Sato<sup>2</sup>, Yoko Kato<sup>3</sup>, Hirotoshi Sano<sup>4</sup>

<sup>1</sup>Dept Neurosurgery, Osaka Mishima Emergency Critical Care Center, <sup>2</sup>Dept Neurosurgery, Tokyo Kyosai Hospital,

<sup>3</sup>Dept Neurosurgery, Banbuntane Hotokukai Hospital, <sup>4</sup>Dept Neurosurgery, Shinkawabashi Hospital

#### Oct 28 (Sat.) Room A

#### $15:30 \sim 16:30$ Session 3 ADVANCES/TRIALS

#### [1-A-15] Use of Adenosine in cerebral aneurysms treatment

Juha Hernesniemi, Patcharin Intarakhao, Peeraphong Thiarawat, Danil Kozyrev, Mario Teo, Joham Choque-Velasquez, Teemu Luostarinen, Behnam Rezai Jahromi

Department of Neurosurgery, Helsinki University Hospital and University of Helsinki, Finland

## [1-A-16] Advanced Digital Technologies, Simulation and Virtual reality in brain surgery: patient engagement, surgical planning, education, and intraoperative use

Joshua Bederson

The Mount Sinai Hospital

#### [1-A-17] Impact of introduction of gamma knife Radiosurgery in the management of cerebral AVMs

Abdessamad El Ouahabi

Department of Neurosurgery, Hopital des Specialites, Ibn Sina University Medical Center, Rabat

#### [1-A-18] Preoperative simulation for cerebral aneurysm surgery as an educational rule

Fusao Ikawa

Department of Neurosurgery Graduate School of Biomedical and Health Sciences Hiroshima University

#### [1-A-19] Clinical Trials and the Cerebrovascular Research Center of the Future

J Mocco

Mount Sinai Health System

#### [1-A-20] Tips and pitfalls of surgery for basilar artery aneurysm

Fusao Ikawa

Department of Neurosurgery Graduate School of Biomedical and Health Sciences Hiroshima University

#### Oct 28 (Sat.) Room B

 $8:10 \sim 8:50$  Session 4 Extra cranial - Intracranial bypass (USA experience)

#### [1-B-1] Microsurgical Flow Diversion for Cure of Giant Aneurysms: 140 Cases of High Flow Skull Base Bypass

Takanori Fukushima

Duke University Medical Center, Carolina Neuroscience Institute

#### [1-B-2] Flow-based Approach to Bypass for Aneurysms

Sepideh Amin Hanjani

#### [1-B-3] Cerebrovascular Bypass in Challenging Cases with Limited Alternatives

Mustafa Baskaya

#### [1-B-4] Bypass Surgery

Michael T Lawton Barrow Neurological Institute

#### Oct 28 (Sat.) Room B

 $8:50 \sim 9:30$  Session 5 Multimodality management in treatment of cerebral aneurysms

#### [1-B-5] The ischemic vulnerability after early brain injury following subarachnoid hemorrhage — examination of second impact theory —

Kosuke Kumagai, Kazuya Fujii, Yutaro Yamamoto, Satoru Takeuchi, Satoshi Tomura, Terushige Toyooka, Arata Tomiyama, Naoki Otani, Kojiro Wada, Kentaro Mori

Department of Neurosurgery, National Defense Medical College, Saitama, Japan

[1-B-6]

#### [1-B-7] endoscopic assisted in the management of aneurysm surgery

VanHe Dong

#### [1-B-8] Surgical treatment of unruptured MCA aneurysms with the use of intraoperative flowmetry

Alberto Pasqualin, Pietro Meneghelli, Giampietro Pinna, Francesco Sala Section of Vascular Neurosurgery and Institute of Neurosurgery, Verona University and City Hospital

#### Oct 28 (Sat.) Room B

 $10:40\sim11:10$  Session 6 Current trends in management of elderly cerebrovascular diseases

#### [1-B-9] hemicraniotomy for stroke

Ekkehard Kasper

#### [1-B-10] The mechanical thrombectomy: is it a new hope for patient suffering from acute ischemic stroke?

Ittichai Sakarunchai

Division of Neurosurgery, Department of Surgery, Faculty of Medicine, Prince of Songkla University

#### [1-B-11] Why and When Surgery is a Treatment Modality in Stroke Patients!

Erion Musabelliu<sup>1</sup>, Yoko Kato<sup>2</sup>, Masahiro Oomura<sup>3</sup>

<sup>1</sup>Fellow Neurosurgeon at Patients in Health Care Clinic and Foundation, <sup>2</sup>Neurosurgeon at Fujita Health University,

<sup>3</sup>Neurology and Neurosciences at Nagoya City University Graduate School of Medical Sciences

#### Oct 28 (Sat.) Room B

 $11:10 \sim 11:40$  Session 7 Neuro imaging in vascular lesions

[1-B-12]

# [1-B-13] Structural brain imaging of the posterior fossa: higher order tractography for the combined visualization of vascular and cranial nerve anatomy

Mojgan Hodaie

Division of Neurosurgery, Department of Surgery, University of Toronto

#### [1-B-14] Imagery vs. Vascular Anatomy in Stroke; What we don't see vs. What should we see!

Erion Musabelliu

Fellow Neurosurgeon at Partners in Health Care Clinic and Foundation

#### Oct 28 (Sat.) Room B

 $13:00 \sim 13:30$  Session 8 Role of Computational flow dynamics, ICG and endoscopy in aneurysm surgery

#### [1-B-15] Dual Channel Endoscopic Indocyanine Green Fluorescence Angiography for Clipping of Cerebral Aneurysms

Won-Sang CHO<sup>1</sup>, Jeong Eun Kim<sup>1</sup>, Su Hwan Lee<sup>1</sup>, Kyung Hyun Kim<sup>1</sup>, Choonghee Lee<sup>2</sup>, Choonghee Shin<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Seoul National University Hospital,

<sup>2</sup>Korea Electrotechnology Research Institute Russia Science Seoul Center, Seoul, Korea

#### [1-B-16] Hemodynamic Analysis of Cerebral Aneurysms; Prediction of Thin-Walled-Area and Potential Rupture Risk

Yong Bae Kim<sup>1</sup>, Ji Hun Choi<sup>2</sup>, Kwang-Chun Cho<sup>3</sup>, Hyo Jae Jeon<sup>2</sup>, Je Hoon Oh<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Gangnam Severance Hospital, Yonsei University College of Medicine,

<sup>2</sup>Department of Mechanical Engineering, Hanyang University, <sup>3</sup>Department of Neurosurgery, Bundang Jeseang General Hospital

#### [1-B-17] Moyamoya disease: Using CFD to chart a novel theory on pathogenesis

JAYANAND SUDHIR BHANU<sup>1</sup>, SANTHOSH KUMAR KANNATH<sup>2</sup>

<sup>1</sup>Neurosurgery Dept, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum,

<sup>2</sup>Imaging Sciences and Interventional Radiology Department, SCTIMST

#### Oct 28 (Sat.) Room B

 $13:30 \sim 14:00$  Session 9 Multimodel management of cerebral AVMs/ vascular malformations

### [1-B-18] Management of Cavernous Malformations

Michael T Lawton

Barrow Neurological Institute

#### [1-B-19] Emergent microsurgical treatment of arteriovenous malformation-related intracranial hemorrhage

Qiao Zhang 1,2, Hong Sun 1,2

<sup>1</sup>Department of Neurosurgery, West China hospital, Sichuan University, Chengdu, P.R. China,

<sup>2</sup>Department of Neurosurgery, Shang Jin Nan Fu hospital, Chengdu, Sichuan Province, P.R. China

#### [1-B-20] 3-D model printing for surgery on arteriovenous malformations

Abhidha Shah

Department of Neurosurgery, K.E.M. Hospital and Seth G.S. Medical College, Parel, Mumbai, India

#### Oct 28 (Sat.) Room B

 $15:30\sim16:30$  Session 10 Current trends in management of aneurysmal SAHs

#### [1-B-21] Cost effective management of vasospasm

Manas Panigrahi, Anup b

Krishna Institute of Medical Sciences

#### [1-B-22] The strategies for the treatment of poor grade subarachnoid hemorrhage patient

Ittichai Sakarunchai

Division of Neurosurgery, Department of Surgery, Faculty of Medicine, Prince of Songkla University

#### [1-B-23] Surgical treatment of distal cerebral aneurysms.

Ilya Senko, Ilya Grigoriev, Vladimir Dashyan, Alexandr Prirodov, Victor Lukjanchikov, Taras Shatokhin, Natalia Polunina, Aleksey Tokarev, Vladimir Krylov

Sklifosovsky Research Institute of Emergency Care

#### [1-B-24] Management Strategies in Intraoperative Rupture of Aneurysms

Jaspreet Singh Dil

National Neurosciences Mission India

#### [1-B-25] Integrating neurosurgical care, education and research across a large urban health system

Joshua Bederson

The Mount Sinai Hospital

#### [1-B-26] Nitric Oxide Metabolite levels in CSF and Serum correlate with severity and outcome in patients with Subarachnoid Hemorrhage

Giat Seng Kho<sup>1,2,4,6</sup>, Regunath Kandasamy<sup>1,6</sup>, Mummedy Swammy<sup>3</sup>, Muzaimi Mustapha<sup>1</sup>, Kamarul Imran<sup>5</sup>, Jafri Malin Abdullah<sup>1,6</sup>

<sup>1</sup>Department of Neurosciences, School of Medical Sciences Universiti Sains Malaysia,

<sup>&</sup>lt;sup>2</sup>Center for Neuroscience Service and Research, School of Medical Sciences Universiti Sains Malaysia,

<sup>&</sup>lt;sup>3</sup>Department of Chemical Pathology, School of Medical Sciences Universiti Sains Malaysia,

<sup>&</sup>lt;sup>4</sup>Sarawak General Hospital, Malaysia, <sup>5</sup>Department of Community Medicine, School of Medical Sciences Universiti Sains Malaysia,

<sup>&</sup>lt;sup>6</sup>Center for Neuroscience Service and Research

#### Oct 29 (Sun.) Room A

 $10:15 \sim 10:55$  Session 11 Management of Cavernoma/ Cavernous Malformation

#### [2-A-1] Surgery of brainstem cavernous angioma

Eka J. Wahjopramono, Yesaya , Julius , Harsan , Lutfi , Binsar , Made , Ferry , Firdaus , Evelyn , Ronny , Maximilan , Eko , Onnie , Wily , Gde , Donny , Bagus

Faculty of Medicine - Pelita Harapan University, Neuroscience Center - Neurosurgery Department - Siloam Hospitals

#### [2-A-2] Treatment of brain stem cavernoma

Mao Ying

#### [2-A-3] Surgical treatment of cavernous malformations involving midbrain: A Single-Center Case series of 34 Patients

Yanming Ren, Chao You, Jin Li, Min He, Hao Li

Department of Neurosurgery, West China Hospital, Chengdu, China

#### [2-A-4] Surgery of brainstem cavernoma

VanHe Dong

#### Oct 29 (Sun.) Room A

10:55 ~ 11:25 Session 12 Role of hybrid surgery (coiling and clipping) in complex aneurysm/AVMs surgery

### [2-A-5] Combined surgical and endovascular treatment of cerebral arteriovenous malformations in the hybrid operating room

Jizong Zhao

National Clinical Research Center of Neurological Diseases Department of Neurosurgery, Beijing Tiantan Hospital, Capital Medical University

#### [2-A-6] Treatment of complex cerebrovascular diseases in the hybrid OR

Mao Ying

#### [2-A-7] Combined endovascular and microsurgical treatment of complex brain arteriovenous malformation

Ivan Radovanovic

Assistant Professor Division of Neurosurgery Toronto Western Hospital University Health Network and University of Toronto Scientist, Toronto Western Research Institute

#### Oct 29 (Sun.) Room A

 $13:05 \sim 13:55$  Session 13 Giant/complex aneurysms- Current trends in management

#### [2-A-8] Posterior fossa giant aneurysms - series of 600+ pts , and new possible effective treatment

Juha A. Hernesniemi, Behnam Rezai Jahromi

Department of Neurosurgery, Helsinki University Hospital and University of Helsinki, Finland

#### [2-A-9] Surgery for large and giant cerebral aneurysms

Hidetoshi Murata, Mitsuru Sato, Ryohei Miyazaki, Taishi Nakamura, Takahiro Tanaka, Nobuyuki Shimizu, Jun Suenaga, Tetsuya Yamamoto Department of Neurosurgery, Yokohama City University Graduate School of Medical Sciences

# [2-A-10] Modified extradural temporopolar approach combined with suction decompression for paraclinoid aneurysms with special attention to long-term surgical and visual outcome

Naoki Otani, Kojiro Wada, Terushige Toyooka, Kentaro Mori

Department of Neurosurgery, National Defense Medical College

#### [2-A-11] Treatment of ACA partially thrombosed giant aneurysms using semi-bonnet bypass

Kentaro Mori

Department of National Defense Medical College

#### [2-A-12] Giant aneurysm- decision making in management

Manas Panigrahi, Chandrasekhar yvbk, ANUP B

Krishna Institute of Medical Sciences

#### Oct 29 (Sun.) Room A

 $16:10 \sim 16:50$  Session 14 Surgical anatomy of complex vascular lesions

#### [2-A-13] Middle cerebral artery aneurysms: anatomical distribution and surgical management.

Raftopoulos Christian

#### [2-A-14] Skull base techniques needed for vascular Neurosurgery

Ivne Cherian

Director, Nobel Institute of Neurosciences, Nobel Medical College and Teaching Hospital, Nepal

#### [2-A-15] Microvascular decompression: the variable venous anatomy of the suboccipital retrosigmoid approach

Mojgan Hodaie

Division of Neurosurgery, Department of Surgery, University of Toronto

#### [2-A-16] Role of anatomy in surgical management of complex AVMs.

Mustafa Baskaya

#### Oct 29 (Sun.) Room A

 $16:50 \sim 17:40$  Session 15 Current trends in management of carotid artery stenosis

[2-A-17]

#### [2-A-18] Experience of CEA surgery.

Weiguo Zhao

#### [2-A-19] The usefulness of trans-diaphragmatic approach for high position carotid endarterectomy

Kojiro Wada<sup>1</sup>, Naoki Ootani<sup>1</sup>, Terushige Toyooka<sup>1</sup>, Satoru Takeuchi<sup>1</sup>, Kosuke Kumagai<sup>1</sup>, Syunsuke Tanoue<sup>2</sup>, Arata Tomiyama<sup>1</sup>, Yutaro Yamamoto<sup>1</sup>, Kentaro Mori<sup>1</sup>

<sup>1</sup>department of neurosurgery, National Defense Medical College, <sup>2</sup>Department of Neurosrugery, JDF central hospital

### [2-A-20] Surgical Results of Carotid Endarterectomy for Twisted Carotid Bifurcation

Joji Tokugawa, Kentaro Kudo, Kazuki Nishioka, Ryogo Ikemura, Takashi Mitsuhashi, Makoto Hishii Department of Neurosurgery, Juntendo University Nerima Hospital

#### [2-A-21] Current trend of surgical treatment of carotid artery stenosis to avoid complication

Kentaro Hayashi, Yuki Matsunaga, Yukishige Hayashi, Kiyoshi Shirakawa, Mitsuto Iwanaga Department of Neurosurgery, Sasebo city general hospital, Sasebo, Japan

#### Oct 29 (Sun.) Room B

 $10.50 \sim 11.25$  Session 16 Current trends in management of intracranial hemorrhages

[2-B-1]

Jafar J. Jafar

#### [2-B-2] Management of Intracerebral Hemorrhage in a Large Urban Health System

Christopher Kellner

#### [2-B-3] Surgical management of Intracerebral hemorrhage.

Vincent Ng Yew Poh

#### Oct 29 (Sun.) Room B

 $11:55 \sim 12:25$  Session 17 Current trends in management of paraclinoid aneurysms

#### [2-B-4] Microsurgical Treatment of Paraclinoid Aneurysms ; Surgical Nuances upon Simplified Group of Aneurysm Direction

Yong Bae Kim, Joonho Chung, Jin Yang Joo

Department of Neurosurgery, Gangnam Severance Hospital, Yonsei University College of Medicine

#### [2-B-5] Programmed Carotid Artery Occlusion for Cavernous ICA Giant Aneurysms

Gerardo Dizon LEGASPI

#### Oct 29 (Sun.) Room B

 $12:25 \sim 12:55$  Session 18 Endovascular treatment in ruptured cerebral aneurysms- Newer trends (Double balloon trapping)

#### [2-B-6] Stent-assisted Coiling for Intracranial Aneurysms

Jiong Dai

Department of Neurosurgery, Renji Hospital, Shanghai Jiaotong University School of Medicine, China

#### [2-B-7] Trapping of recurrent A1 segment dissecting aneurysm after stent assisted coil embolization: case report

Hajime Ono<sup>1</sup>, Yuichiro Tanaka<sup>2</sup>, Taigen Sase<sup>2</sup>, Hiroshi Takasuna<sup>2</sup>, Yasuyuki Yoshida<sup>1</sup>

<sup>1</sup>St. Marianna University Toyoko Hospital, Department of Neurosurgery,

<sup>2</sup>St. Marianna University School of Medicine, Department of Neurosurgery

#### [2-B-8] Clinical Manifestations of Isolated Chronic Middle Cerebral Artery Occlusion in Relation to Angiographic Features

Hee Sup Shin<sup>1</sup>, Gook Ki Kim<sup>1</sup>, Chang-Woo Ryu<sup>2</sup>, Jun Seok Koh<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Kyung Hee University School of Medicine, Seoul, Korea,

<sup>2</sup>Department of Radiology, Kyung Hee University School of Medicine, Seoul, Korea

#### Oct 29 (Sun.) Room B

 $12:55 \sim 13:25$  Session 19 Current trends in management of Small aneurysms

#### [2-B-9] MOYA MOYA disease in pregnancy

Ekkehard Kasper

#### [2-B-10] The History and Update of Cerebral Aneurysm Management

Gook Ki Kim<sup>1</sup>, Hee Sup Shin<sup>1</sup>, Jae Seung Bang<sup>2</sup>, Jun Seok Koh<sup>1</sup>, Seung Hwan Lee<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Kyung Hee University School of Medicine, Seoul, Korea,

<sup>2</sup>Department of Neurosurgery, Seoul National University College of Medicine, Seoul, Korea

#### [2-B-11] Complication avoidance in unruptured middle cerebral artery M1 segment superior wall aneurysm Surgery

Sandeep Talari<sup>1</sup>, Yoko kato<sup>2</sup>, yasuhiro yamada<sup>2</sup>, vladimir balik<sup>3</sup>, tsukasa kawase<sup>2</sup>, kei yamashiro<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, CARE Hospitals, visakhapatnam, Andhra pradesh, India,

<sup>2</sup>Department of Neurosurgery,Banbuntane hotokukai hospital, fujita health university, nagoya, japan,

<sup>3</sup>Department of Neurosurgery, University Hospital Olomouc, Olomouc, Czech Republic

#### Oct 29 (Sun.) Room B

 $13:25 \sim 13:55$  Session 20 Current trends in management of unruptured aneurysms

### [2-B-12] Application of multispectral imaging in vascular and tumor surgery using different fluorescent markers simultaneously Cleopatra Charalampaki

#### [2-B-13] Management of unruptured cerebral aneurysms

Vincent Ng Yew Poh

#### [2-B-14] Microsurgical treatment of fusiform aneurysms of the M1 segment of the middle cerebral artery

Andrey Vladimirovich Dubovoy FSBI "Federal Center of Neurosurgery", Novosibirsk

#### Oct 29 (Sun.) Room B

15:35  $\sim$  16:15 Session 21 Giant/ complex aneurysms

#### [2-B-15] Confocal laser endomicroscopy: a milestone journey from surgical microscopy to cellular surgery

Cleopatra Charalampaki

#### [2-B-16] Intracranial aneurysm surgery: controlling the intraoperative rupture

Raftopoulos Christian

#### [2-B-17] Management of giant aneurysms

Abhidha Shah

Department of Neurosurgery, K.E.M. Hospital and Seth G.S. Medical College, Parel, Mumbai, India

#### [2-B-18] Usefulness of the Pipeline embolic device for large and giant carotid cavernous aneurysms

Shigeru Miyachi<sup>1</sup>, Ryo Hiramatsu<sup>2</sup>, Hiroyuki Onishi<sup>3</sup>, Ryokichi Yagi<sup>2</sup>, Toshihiko Kuroiwa<sup>2</sup>

<sup>1</sup>Neuroendovascular Therapy Center, Aichi Medical Univeristy, Nagakute, Aichi, Japan,

<sup>2</sup>Department of Neurosurgery and Neuroendovascular Therapy, Osaka Medical College, Takatsuki, Osaka, Japan,

<sup>3</sup>Onishi Neurosurgical Hospital, Akashi, Hyogo, Japan

#### Oct 29 (Sun.) Room B

#### 16:15 ~ 17:25 Session 22 MISCELLANEOUS (EXPERIENCE)

## [2-B-19] Management of intracranial aneurysms in developing country. Cost effectiveness of coiling versus clipping in single centre of Rabat, Morocco

Abdessamad El Ouahabi

Department of Neurosurgery Hopital des Specialites, Ibn Sina University Medical Center, Rabat

### [2-B-20] Establishment of a Comprehensive Stroke Center in WakeMed Hospital System, North Carolina, USA:

#### **Collective Experience and Challenges**

Andrey Belayev<sup>1</sup>, Kimberly Elks<sup>2</sup>, Jacob Rodman<sup>1</sup>

<sup>1</sup>Raleigh Neurosurgical Clinic, <sup>2</sup>WakeMed Heath & Hospitals

#### [2-B-21] Starting cerebrovascular surgery: A young neurosurgeon experience.

Thomas Tommy

Siloam Hospitals, Indonesia

[2-B-22]

Withdrawn

#### [2-B-23] Lessons learnt in clipping of Acom Aneurysms.

Jaspreet Singh Dil

#### [2-B-24] Comprehensive Modern Neurosurgery in rural India, our experience at Rural Hospital.

Dr. Hemant Ganpatrao Deshpande<sup>1</sup>, Dr, Sandeep Iratwar<sup>2</sup>, Dr. Akshay Patil<sup>3</sup>, Dr. Shailendra Anjankar<sup>4</sup>, Dr. Nitin Madavi<sup>5</sup> Dr. Hemant Deshpande, Prof. of Neurosurgery, JNMC, DMIMS, Sawangi (Meghe) M.S., <sup>2</sup>Dr. Iratwar S. Asso. Professor, <sup>3</sup>Dr. Patil, A. Asst. Professor., <sup>4</sup>Dr. Anjankar S. Asst. Professor., <sup>5</sup>Dr. Madavi N. Resident Doctor.

[2-B-25]

Withdrawn

Oct 29 (Sun.) Room B

 $17:25\sim17:45$  Session 23 Current trends in management of Small aneurysms

#### [2-B-26] Which One Ruptured? Subarachnoid Hemorrhage and Multiple Intracranial Aneurysms

Sepideh Amin Hanjani

#### [2-B-27] Contralateral approach for clipping of intracranial aneurysms

Qing Lan
2nd Affiliated Hospital, Soochow University, P.R.China

#### Oct 28 (Sat.) Poster

#### 16:40 ∼ 16:55 Poster

#### [1-P-1] risk factors of unfavorable outcome and short term outcome in patients with ruptured pericallesal artery aneurysms

Iliya Vladimirovich Grigoriev<sup>1,2</sup>, Vladimir Viktorovich Krylov<sup>1</sup>, Vladimir Grigoryevich Dashyan<sup>2</sup>, Viktor Aleksandrovich Lukyanchikov<sup>2</sup>, Iliya Vladimirovich Senko<sup>2</sup>

<sup>1</sup>1Moscow State University of Medicine and Dentistry n.a. Yevdokimov A.I., Department of Neurosurgery,

<sup>2</sup>Research Institute of Emergency Care n.a. N.V.Sklifosofsky, Neurosurgery, Moscow, Russian Federation

# [1-P-2] Angiographic risk factors for perforating and parenchymal injury in patients of middle cerebral artery aneurysm clipping with lateral supraorbital approach

Jong-Soo Kim, Hyun Goo Lee, Je Young Yeon, Seong-Chul Hong

Department of Neurosurgery, Samsung Medical Center, Sungkyunkwan University School of Medicine

# [1-P-3] A case of ruptured right internal carotid-posterior communicating artery aneurysm causing transient mydriasis, conjunctival hyperemia and ophthalmoplegia after clipping

Nobuyuki Saitoh, Akio Harada, Tetsuya Masoka

Department of neurosurgery, Mitoyo General Hospital

#### [1-P-4] Preservation of Perforating Arteries in Cerebral Aneurysm Surgery:

#### Clinical Usage of Polyglactin Mesh

Ryohei Miyazaki, Hidetoshi Murata, Jun Suenaga, Nobuyuki Shimizu, Kensuke Tateishi, Mitsuru Sato, Taishi Nakamura, Takahiro Tanaka, Tetsuva Yamamoto

Department of Neurosurgery, Yokohama City University Graduate School of Medical Sciences and School

# [1-P-5] Usefulness of Preoperative Transfemoral Cerebral Angiography performed before Aneurysmal clipping of distal ACA aneurysms: Determination of unilateral or bilateral interhemispheric approach

Seul Kee Lee, Tae Sun Kim, Sung Pil Joo, You Sub Kim

Department of Neurosurgery, Chonnam National University Hospital & Medical School Gwangju, Korea

#### [1-P-6] Surgical Treatment of Carotid Artery Stenosis

Tetsuya Tsukahara, Shunichi Fukuda

Department of Neurosurgery, National Hospital Organization, Kyoto Medical Center

#### [1-P-7] Microsurgical Carotid Endarterectomy with Interintimal dissection for Highly Calcified Plaques

Tsutomu Ichinose, Takashi Tsuruno, Yohei Ohnishi, Hiroshi Uda, Masaki Yoshimura

Department of Neurosurgery, Yao Tokushukai General Hospital

#### [1-P-8] Results of neck clipping and intraaneurysmal

#### thrombectomy for partially thrombosed giant cerebral aneurysms compressing brainstem.

Ririko Takeda, Yuichiro Kikkawa, Tomoya Kamide, Munehiro Otsuka, Kaima Suzuki, Shunsuke Ikeda, Kouichi Uramaru, Ryosuke Tsuchiya, Hiroki Kurita

Department of Cerebrovascular Surgery, International Medical Center, Saitama Medical University

#### [1-P-9] Role of bypass procedure for complex cerebral aneurysms

Yoichi Morofuji, Tsuyoshi Izumo, Nobutaka Horie, Takeo Anda, Takayuki Matsuo

Department of Neurosurgery, Nagasaki University

#### [1-P-10] Usefulness of ultrasound imaging during neurosurgical procedures for patients with vascular malformations

Yoshiaki Kumon<sup>1</sup>, Masahiro Nishikawa<sup>1</sup>, Hideaki Watanabe<sup>2</sup>, Masahiko Tagawa<sup>2</sup>, Shouhei Kohno<sup>2</sup>, Naoki Shinohara<sup>3</sup>, Takeharu Kunieda<sup>2</sup>
<sup>1</sup>Department of Regeneration of Community Medicine, Ehime University Graduate School of Medicine,

<sup>2</sup>Department of Neurosurgery, Ehime University Graduate School of Medicine, <sup>3</sup>Department of Neurosurgery, HITO hospital

#### [1-P-11] Prevalence and risk factors of ataxia after spontaneous cerebellar hemorrhage

Chuanyuan Tao

Neurosurgery department, West China Hospital, Sichuan University

#### [1-P-12] Current Trend in Diagnosis and Management of Angiographically Occult Vascular Malformation (AOVMs)

Dingke WEN, Lu MA, Chao YOU, Xi Li

West China School of Medicine S.C.U./West China hospital S.C.U.

# [1-P-13] COMPARISON OF OUTCOME BETWEEN EVACUATIVE DECOMPRESSIVE HEMICRANIECTOMY AND CRANIOTOMY EVACUATION SPONTANEOUS INTRACEREBRAL HEMORRHAGE

#### PATIENTS WITH GLASGOW COMA SCALE < 9

Erwin Wijatmiko, Muhammad Zafrullah Arifin, Achmad Adam, Bilzardy Ferry Zulkifli

Hasan Sadikin Hospital - Padjadjaran University

#### [1-P-14] 1 year survival after decompression craniectomy for severe non-traumatic intracranial hemorrhage

Franziska Anna Schmidt, Barbara Elisabeth Kraus, Christianto B. Lumenta

## [1-P-15] The second phase of Perioperative Antihypertensive Treatment in spontaneous Intracerebral Hemorrhage trial (PATICH 2): a multicenter, randomized, assessor-blinded, controlled study

Jun Zheng, Zhiyuan Yu, Chao You

Department of Neurosurgery, West China Hospital, Sichuan University

#### [1-P-16] Comparison of craniotomy and decompressive craniectomy in large supratentorial intracerebral hemorrhage

Sang Kyu Park

Incheon St. Mary's Hospital, The Catholic University of Korea

#### [1-P-17] Paraclinoid wide-neck giant aneurysm clipping with the assistance of EV3 Hyperglide baloon

Lu Ma

Department of Neurosurgery, West China Hospital, Sichuan University

#### [1-P-18] Rapid Re-growing cerebral dissecting A- com. aneurysm despite repeated treatment

Chan-Jong Yoo

Department of neurosurgery, Gachan Medical School, Gil Medical Center

#### [1-P-19] Endovascular Treatment for Symptomatic Vertebral Artery Dissecting Aneurysms

Dong-Jun Lim, Sung-Kon Ha, Sung-Won Jin, Yong-Su Chung

Neurosurgery, Ansan Hospital, Korea University Medical Center, Korea

#### [1-P-20] Intraprocedural thrombosis during endovascular treatment of intracranial aneurysms

Dongkeun Hyun, Seyang Oh, Yusik Shim, Hyeonsun Park

Department of Neurosurgery, Inha University Hospital, Incheon, Korea

#### [1-P-21] Flow diverter (FRED) treatment of intracranial aneurysms

George Kwok Chu Wong

Prince of Wales Hospital, the Chinese University of Hong Kong, Hong Kong

## [1-P-22] Clinical Analysis Comparing Efficacy between a Distal Filter Protection Device and Proximal Balloon Occlusion Device during Carotid Artery Stenting

Seung young Chung, Moon Sun Park, Se Hun Chang

Eulji University Hospital, Daejeon, South Korea

#### [1-P-23] Spontaneous resolution of traumatic carotid-cavernous fistula

Kevin Gunawan, Affan Priyambodo, Setyo Widi Nugroho, Wismaji Sadewo, Hanif Gordang Tobing, Mohamad Saekhu, Syaiful Ichwan,

Renindra Ananda Aman, Samsul Ashari

Department of Neurosurgery, Faculty of Medicine Universitas Indonesia, Dr. Cipto Mangunkusumo General Hospital

### [1-P-24] Primary hemorrhagic neurovascular diseases (PHNVDs) in Tibetans

Anqi Xiao, Ruiqi Chen, Hao Li, Lu Ma, Sen Lin, Xin Hu, Chao You

Department of Neurosurgery, West China Hospital, Sichuan University, Chengdu

#### [1-P-25] Glioma apoplexy presenting like an acute Hipertensive Intracerebral Hemorrhage: A Case Report

Elric Brahm Malelak, Bilzardy Ferry Zulkifli, Achmad Adam, Muhammad Zafrullah Arifin

Neurosurgery Department-Hasan Sadikin Hospital, Faculty of Medicine Universitas Padjadjaran, Bandung

#### [1-P-26] Intracerebral Hemorrhage with Cerebral Venous Sinus Thrombosis in Tibetan Population

Jiagang Liu, Lu Ma

West China Hospital, Sichuan University

# [1-P-27] Nano-deferoxamine micelle target the focus of intracerebral hemorrhage to improve iron overload-related brain injury in a mouse model

Meng Tian 1,2, Lu Ma 1, Hao Li 1, Chao You 1,2

<sup>1</sup>Department of Neurosurgery, West China Hospital, Sichuan University,

<sup>2</sup>Neurosurgery Research Laboratory, West China Hospital, Sichuan University

#### [1-P-28] Challenge in starting an endovascular centre in a developing country

Muhammad Kusdiansah, Muhammad Zafrullah Arifin, Achmad Adam, Bilzardy Ferry Zulkifli

Hasan Sadikin Hospital - Padjajaran University

#### [1-P-29] Intracranial Cavernomas – Management strategies

PRAVIN TUKARAM SURVASHE<sup>1</sup>, VERNON VELHO<sup>2</sup>

<sup>1</sup>Assistant Professor in Neurosurgery, <sup>2</sup>Professor and Head of the department of Neurosurgery

## [1-P-30] Transient augmentation of motor evoked potentials during temporary occlusion of middle cerebral artery in aneurysmal surgery: Is it associated with ischemia in subcortical grey matter?

Pritam Gurung<sup>1</sup>, Motoyama Yasushi<sup>2</sup>, Kodama Yuji<sup>1</sup>, Yoshihiro Kuga<sup>1</sup>, Katsushi Taomoto<sup>1</sup>, Hideyuki Ohnishi<sup>1</sup>, Hiroyuki Nakase<sup>2</sup>

10hnishi Neurological center, <sup>2</sup>Nara Medical University,

### [1-P-31] Elevated hemoglobin is associated with cerebral infarction in Tibetan patients with primary hemorrhagic neurovascular diseases

Ruigi Chen, Chao You

Department of Neurosurgery, West China Hospital of Sichuan University

# [1-P-32] Frontotemporal Lobes in Human Severe Traumatic Brain Injury: A Quantitative Protein Profiling Study of Human Brain Samples RUI TIAN<sup>1</sup>, BENHONG XU<sup>2</sup>, XIA WANG<sup>2</sup>, SHAOHUA ZHAN<sup>2</sup>, RENZHI WANG<sup>3</sup>, YI GUO<sup>4,5</sup>, GE WEI<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, West China Hospital, Sichuan University, Chengdu, China.,

<sup>2</sup>National Key Laboratory of Medical Molecular Biology and Department of Immunology; Institute of Basi,

<sup>3</sup>Department of Neurosurgery, Peking Union Medical College Hospital, Chinese Academy of Medical Scienc,

<sup>4</sup>Department of Neurosurgery, Tsinghua Changgung Hospital. Beijing 102218, China.,

<sup>5</sup>Department of Neurosurgery, Affiliated Hospital of Hebei University; Baoding 071000, China.

#### [1-P-33] Spontaneous Regression of Intracranial Arteriovenous Malformation (AVM)

Hyeon-Song Koh, Hyon-Jo Kwon, Jeong-Wook Lim

Chungnam National University Hospital

#### [1-P-34] Surgery of cerebral aneurysms in acute stage SAH

(experience Moscow high-volume center).

Ilya Senko, Vladimir Dash'yan, Vladimir Krylov, Alexander Prirodov, Victor Luk'yanchikov, Alexey Tokarev, Natalia Polunina, Taras Shatokhin, Evgeniy Bakharev

Sklifosovsky Research Institute of Emergency Care, Department of Neurosurgery

#### [1-P-35] Intravenous hydrogen therapy with intra-cisternal magnesium infusion in in severe aneurysmal subarachnoid hemorrhage

Satoru Takeuchi, Kentaro Mori, Kosuke Kumagai, Kazuya Fujii, Naoki Otani, Terushige Toyooka, Kojiro Wada Department of Neurosurgery, National Defense Medical College

### [1-P-36] Hyperperfusion Syndrome after STA-MCA bypass in Patients with Moyamoya Disease

Yi Liu, Chao You, Min He, Yanchao Wang, Daibo Ke, Qiguang Wang

Dept.Neurosurgery, West China Hospital, Sichuan University

### [1-P-37] Management of giant paraclinoid aneurysms by methods other than microsurgical clipping

Yerbol Makhambetov, Asylbek Kaliyev, Faizulla Smagulov, Yerkyn Medetov, Marat Kulmirzayev, Serik Akshulakov National Center of Neurosurgery

## [1-P-38] Partial wrap-clipping of the entrance of the pseudolumen of a fusiform aneurysm in the posterior inferior cerebellar artery: a technical note.

Yasushi Motoyama, Yoshitaka Takamura, Shuichi Yamada, Young-Su Park, Hiroyuki Nakase Department of Neurosurgery, Nara Medical University

#### [1-P-39] Consideration for surgery of anterior choroidal artery aneurysm

Toshikazu Hidaka<sup>1</sup>, Fusao Ikawa<sup>2</sup>, Tatsuya Mizoue<sup>1</sup>, Takeshi Ueda<sup>1</sup>, Hideo Ohba<sup>1</sup>, Shingo Matsud<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, Shimane Prefectural Central Hospital, Izumo Japan,

<sup>2</sup>Department of Neurosurgery, Graduate School of Biomedical and Health Sciences Hiroshima University, Hiroshima, Japan

## [1-P-40] Sonolysis in Prevention of Brain Infarctions during Internal Carotid Endarterectomy (SONOBIRDIE) Trial - an Ongoing Randomized Controlled Trial

Jiri Fiedler<sup>1</sup>, David Skoloudik<sup>2</sup>, Tomas Hrbac<sup>3</sup>, David Netuka<sup>4</sup>, Vladimir Benes III<sup>5</sup>, M. Kovar<sup>6</sup>, D. Viszlayova<sup>7</sup>, V. Nosal<sup>8</sup>, Vladimir Benes<sup>4</sup>

Department of Neurosurgery, Hospital Ceske Budejovice (Budweis), Czech republic,

<sup>2</sup>Center of Research and Science, Faculty of Health Sciences, Palacký University Olomouc, Czech Republ,

<sup>3</sup>Dept. Neurosurgery, University Hospital Ostrava, Ostrava, Czech Republic,

<sup>4</sup>Dept. Neurosurgery, Military University Hospital Prague, Prague, Czech Republic,

<sup>5</sup>Dept. Neurosurgery, Regional Hospital Liberec, Liberec, Czech Republic,

<sup>6</sup>Dept. Neurology, Na Homolce Hospital Prague, Prague, Czech Republic, <sup>7</sup>Dept. Neurology, University Hospital Nitra, Nitra, Slovakia,

<sup>8</sup>Dept. Neurology. Jessenius Faculty of Medicine. Comenius University Bratislava. Martin. Slovakia

#### [1-P-41] Blood blister-like aneurysms in Tibetans:a single center experience

Rui Guo, Ruiqi Chen, Lu Ma, Hao Li, Sen Lin, Chao You Department of neurosurgery, West China Hospital

#### [1-P-42] PARP inhibition attenuates early brain injury through NF- K B/MMP-9 pathway in a rat model of subarachnoid hemorrhage

Wei Wang, Jiajia Zheng

Shanghai Punan Hospital

#### [1-P-43] Minimally invasive surgery of hypertensive basal ganglia hemorrhage: a clinical and related basic study

Weidong Liu, Jiajia Zheng Shanghai Punan Hospital

#### [1-P-44] New strategy of anastomosis in STA-MCA bypass surgery.

Ryo Suzuki, Isao Kitahara, Ataru Fukuda, Hiroshi Yonetani Chiba tokushukai hospital

#### [1-P-45] Endoscopic surgery of putamenal hematomas.

Aleksei Sytnik<sup>1,2</sup>, Vladimir Dashyan<sup>1,2</sup>, Vladimir Krylov<sup>1,2</sup>, Ivan Godkov<sup>1</sup>

Sklifosovskiy Research Institute of Emergency Care, <sup>2</sup>Moscow State University of Medicine and Dentistry named after A.I. Evdokimov.

#### [1-P-46] Treatment of MCA aneurysms a developing country perspective.

Ganesh Kumar Manoharan, Jaspreet Singh Dil, Manoharan Subramanian, Raja Annasamy
Department of Neurosurgery, National Neurosciences mission, Ganesh Priya Hospital, Madurai.

#### [1-P-47] INTRAOPERATIVE RUPTURE OF CEREBRAL ANEURYSM: ANAESTHESIOLOGIST'S CHALLENGE

Harpreet Kaur Government Medical College, Amritsar, India

#### [1-P-48] Dural arteriovenousfistula with vein of galen dilatation mimicking vein of galen malformation in adult

Kum Whang, Jong Yeun Kim, Jong Wook Choi, Yeun Moo Koo, Sung Min Cho, Jhin Soo Pyen, Chul Hu, Ji Woong Oh Department of Neurosurgery, Wonju Severence Christian Hospital, Wonju College of Medicine, Yonsei U.

#### [1-P-49] Surgical strategy of complex intracranial aneurysms a developing country experience

Nabil Mohamed Abdel rahman<sup>1</sup>, Tamer Hassan Shehata<sup>1</sup>, Tamer İbrahim Metwally<sup>1</sup>, Nadim abdelrahman Aly<sup>2</sup>
<sup>1</sup>Faculty of Medicine, Alexandria University, <sup>2</sup>Alexandria university Hospitals

#### Oct 29 (Sun.) Poster

#### 11:30 ∼ 11:45 Poster

#### [2-P-1] Dissection strategy of the Sylvian fissure and MCA aneurysms using 3D curved-MPR (multiplanar reconstruction) images

Taek Kyun Nam, Yong Sook Park, Seung Won Park, Jeong Taik Kwon, Young Baeg Kim

Chung-Ang University Hospital, Department of Neurosurgery

#### [2-P-2] Correct Plane of the Sylvian Vein Dissection for Middle Cerebral Artery Aneurysm Using Indocyanine Green Videoangiography

Tae Sun Kim, Sung Hyun Kim, Seung Hoon Jung, Sung Pil Joo

Department of Neurosurgery, Chonnam National University Hospital, Republic of Korea

#### [2-P-3] Results of Microsurgical Clipping of Paraclinoid Aneurysms: Avoidance of Complications

Young-Min Han<sup>1</sup>, Ji-Sook Yoo<sup>1</sup>, Dong-Kyu Jang<sup>2</sup>, Sang-Kyu Park<sup>2</sup>

<sup>1</sup>Incheon Neurological Clinic Na-eun Hospital Incheon Republic of Korea,

<sup>2</sup>Incheon St. Mary's Hospital The Catholic University of Korea Incheon Republic of Korea

#### [2-P-4] Effect of carotid plaque types on radiological and clinical outcomes: Carotid angioplasty with stent versus Carotid endarterectomy

Young-Min Han<sup>1</sup>, Ji-Souk Yoo<sup>1</sup>, Dong-Kyu Jang<sup>2</sup>, Sang-Kyu Park<sup>2</sup>

<sup>1</sup>Incheon Neurological Clinic Naeun Hospital, Incheon Rep. of Korea,

<sup>2</sup>Incheon St. Mary's Hospital The Catholic University of Korea, Incheon Rep. of Korea

#### [2-P-5] Early STA-MCA bypass in thrombosed aneurysm with acute symptomatic ischemic stroke

Yong Hyun Chai, You Sub Kim, Sung Pil Joo, Tae Sun Kim

Department of Neurosurgery, Chonnam National University Hospital & Medical School, Korea

#### [2-P-6] Prospective study on primary intraventricular hemorrhage in Chineses adults

Si Zhang, Chao You

Department of Neurosurgery, West China Hospital of Sichuan University

#### [2-P-7] Neuroprotection of nalmefene for postoperative patients with spontaneous intracerebral hemorrhage

Xi I i

Department of Neurosurgery, West china Hospital, Sichuan University

### [2-P-8] Seizure prophylaxis in patients with acute spontaneous supratentorial intracerebral hemorrhage: a randomized, double-blind, placebo-controlled trial

. Xin Hu, Yuan Fang, Hao Li, Lu Ma, Chao You

Department of Neurosurgery, West China Hospital of Sichuan University, Chengdu, China

# [2-P-9] Comparison of hematoma density heterogeneity and ultraearly hematoma growth in predicting hematoma expansion in spontaneous intracerebral hemorrhage

Zhiyuan Yu, Jun Zheng, Lu Ma, Chao You

Department of Neurosurgery, West China Hospital, Sichuan University

#### [2-P-10] Aneurysm surgery without retractors – An Institutional review.

VERNON VELHO<sup>1</sup>, PRAVIN SURVASHE<sup>2</sup>

<sup>1</sup>Professor and Head of the Department (M.Ch,DNB Neurosurgery), <sup>2</sup>M.Ch.Neurosurgery

# [2-P-11] Use of Intraoperative Dual-volume 3-Dimensional Volume-Rendering Rotational Angiography Immediately Following Surgical Clipping of Cerebral Aneurysms

I-Chang Su<sup>1,2</sup>, Yew-Weng Fong<sup>1</sup>, Szu-Kai Hsu<sup>1</sup>, Chih-Ta Huang<sup>1</sup>, Cheng-Ta Hsieh<sup>1</sup>, Jinn-Shan Huang<sup>1</sup>, Chih-Ju Chang<sup>1</sup>

<sup>1</sup>Division of Neurosurgery, Department of Surgery, Taipei Cathay General Hospital, Taipei, Taiwan,

<sup>2</sup>School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan

### [2-P-12] Surgical Management of Blood Blister-like Aneurysms of the Internal Carotid Artery: Results of a 10-Year Single-Center Experience

Department of Neurosurgery, West China Hospital, Sichuan University, Chengdu, China

# [2-P-13] Low-profile visualized intraluminal support stent assisted coil embolization using IV Tirofiban in the treatment of ruptured intracranial aneurysms

In Sung Park, Hyun Park, Kwangho Lee, Kyunghee Lee

Department of Neurosurgery, Gyeongsang National University School of Medicine

#### [2-P-14] Parent artery occlusion based on balloon test occlusion for the treatment of complex ICA aneurysms

Jong-Hyun Park, Myung Jin Oh, Dong-Seung Shin, Bum-Tae Kim

2Department of Neurosurgery, Bucheon Hospital, Soonchunhyang University College of Medicine, Bucheon

#### [2-P-15] Clinical Research of Willis Covered Stent in the Treatment of Complex Intracranial Aneurysms

LunXin Liu, ChaoHua Wang, ChangWei Zhang, Cong Wu, Ting Wang, XiaoDong Xie WestChina Hospital of Sichuan University

#### [2-P-16] Serpentine Cavernous Aneurysm Presented with Visual Symptoms Improved by Endovascular Coil Trapping : A case report

Myeong-Jin Oh<sup>1</sup>, Dong-Seong Shin<sup>1</sup>, Bum-Tae Kim<sup>1</sup>, Radi Se<sup>2</sup>

<sup>1</sup>Department of Neurosurgery, Soonchunhyang University Bucheon Hospital, Bucheon, Korea,

<sup>2</sup>Department of Neurosurgery, Preah Ket Mealea Hospital, Phnom Pehn, Cambodia

#### [2-P-17] Cerebral aneurysm coiling simulation using patient-specific 3D printing: from lab to real angio suite

Sangweon Lee, Youngsoo Kim, Seungkug Baik, Soonki Sung, Dongwuk Son, Geunsung Song

Pusan national university Yangsan hospital

#### [2-P-18] Usefulness and limitation of NIRS monitoring during endovascular thrombectomy in acute ischemic stroke

Ryo Hiramatsu<sup>1</sup>, Motomasa Furuse<sup>1</sup>, Ryokichi Yagi<sup>1</sup>, Hiroyuki Ohnishi<sup>2</sup>, Noriaki Matsubara<sup>1</sup>, Shinji Kawabata<sup>1</sup>, Shigeru Miyachi<sup>3</sup>, Toshihiko Kuroiwa<sup>1</sup>

<sup>1</sup>Department of Neurosurgery and Endovascular Therapy, Osaka Medical College, <sup>2</sup>Ohnishi Neurological Center,

<sup>3</sup>Neuroendovascular Therapy Center, Aichi Medical University

## [2-P-19] Efficacy of Drip, Ship, Retrieve Method by Helicopter Transportation and Teleradiology for Acute Ischemic Stroke in Isolated Islands, Nagasaki Prefecture. Japan

Takeshi Hiu<sup>1</sup>, Keisuke Ohzono<sup>1</sup>, Ichiro Kawahara<sup>1</sup>, Chikaaki Nakamichi<sup>2</sup>, Hiroshi Iwanaga<sup>3</sup>, Tomonori Ono<sup>1</sup>, Ryujiro Ushijima<sup>1</sup>, Keisuke Tsutsumi<sup>1</sup>

<sup>1</sup>Department of Neurosurgery, National Hospital Organization Nagasaki Medical Center,

<sup>2</sup>Department of Emergency, National Hospital Organization Nagasaki Medical Center,

<sup>3</sup>Department of Neurology, National Hospital Organization Nagasaki Medical Center

### [2-P-20] Effects of spinal cord and motor cortex electrical stimulation on neuropathic pain caused by stroke

-Are they potent surgical candidates for CPSP?-

Shinichiro Takeshita<sup>1,4,5</sup>, Atsushi Tominaga<sup>1</sup>, Tomohide Akimitsu<sup>2</sup>, Yoshihiro Kiura<sup>1</sup>, Takuro Magaki<sup>1</sup>, Tetsuhiko Sakoguchi<sup>1</sup>, Hiroshi Kondo<sup>1</sup>, Yuyo Maeda<sup>1</sup>, Katsuzo Kiya<sup>3</sup>, Kaoru Kurisu<sup>4</sup>

<sup>1</sup>Department of Neurosurgery and Neuroendovascular therapy, Hiroshima Prefectural Hospital,

<sup>2</sup>Department of Neurosurgery and Neuromodulation Center, Takanobashi Chuo Hospital,

<sup>3</sup>Hiroshima Prefctural Hospital, <sup>4</sup>Department of Neurosurgery, Graduate School of Biomedical and Health Sciences, Hiroshima University,

#### [2-P-21] Crucial risk factors for postoperative enlargement of basal ganglia hematoma after stereotactic aspiration.

Wonsoo Son, Jaechan Park

Kyungpook National University Hospital, Daegu, Republic of Korea

#### [2-P-22] Factors predicting ventricle volume increase after aneurysmal clipping in patients with subarachnoid hemorrhage

Yu Deok Won, Ji Hoon Bang, Min Kyun Na, Myung-Hoon Han, Je II Ryu, Jin Hwan Cheong, Choong Hyun Kim, Jae Min Kim Department of Neurosurgery, Hanyang University Guri Hospital, South Korea

#### [2-P-23] The Role of Adiponectin in Secondary Inflammatory Reaction in Cerebral Ischemia

YongSu Jung, SungKon Ha, SangDae Kim, SeHoon Kim, DongJun Lim

Department of Neurosurgery, Korea University Ansan Hospital

#### [2-P-24] Diagnosis and treatment of intracranial aneurysms in infants

Zhiyong Liu, Jin Li, Min He, Lu Ma, Yi Liu, Hong Sun, Jianguo Xu, Chao You Neurosurgry of West-China hospital, Sichuan University

### [2-P-25] POSTERIORLY PROJECTING A-COMA ANEURYSMS: DOME SIDE APPROACH

Sung Don Kang

Department of Neurosurgery, School of Medicine, Wonkwang University

#### [2-P-26] Surgical revascularization for the treatment of complex anterior cerebral artery aneurysms: experience and illustrative review

Sung Ho Lee, ji Wook Ryu, Seok Keun Choi, Byung Duk Kwun

Department of Neurosurgery, Kyung Hee University Hospital, Seoul, Republic of Korea

#### [2-P-27] Ruptured choroidal artery aneurysms in patients with Moyamoya Disease: Two case series and review of the literatures

You Sub Kim, Seul Kee Lee, Sung Pil Joo, Tae Sun Kim

Department of Neurosurgery, Chonnam National University Hospital and Medical School, Korea

#### [2-P-28] Clazosentan for Aneurysmal Subarachnoid Hemorrhage: A Systematic Review

Rizki Meizikri Bakhtiar<sup>1</sup>, Galuh Indiradini Basuki<sup>2</sup>

<sup>1</sup>Faculty of Medicine Andalas University, <sup>2</sup>Faculty of Medicine Brawijaya University

#### [2-P-29] Microsurgical treatment for Rebleeding aneurysms after coil embolization in Ruptured intracranial aneurysms

YoungGyun Jeong<sup>1</sup>, HaeWoong Jeong<sup>2</sup>, SeongTae Kim<sup>1</sup>

<sup>1</sup>Deparment of Neurosurgery, Inje University, Busan Paik Hospital, Busan, ROK,

<sup>2</sup>Department of Neuroradiology, Inje University, Busan Paik Hospital, Busan, ROK

#### [2-P-30] Applicability of predictive model for management of poor grade subarachnoid haemorrhage- a study of 94 patients with 6 months follow up.

Shahid Hanif, Deepti Bhargava, Saffwan Mohamed, Anna Visca, Paul Eldridge

Walton Centre for Neurology and Neurosurgery, Liverpool, UK

#### [2-P-31] Increased ratio of superficial temporal artery flow rate after superficial temporal artery-to-middle cerebral artery anastomosis: Can it reflect the extent of collateral flow?

Sung-Won Jin, Sung-Kon Ha, Hae-Bin Lee, Sang-Dae Kim, Se-Hoon Kim, Dong-Jun Lim Korea University Ansan Hospital, Department of Neurosurgery

#### [2-P-32] The assessment of blood flow in the supratrochlear artery to determine the surgical treatment strategy in patients with ICA occlusion.

Vagan Dalibaldyan<sup>1,2</sup>, Vladimir Krylov<sup>1,2</sup>, Victor Luk'yanchikov<sup>1</sup>, Natal'ia Polunina<sup>1</sup>, Vladimar Dash'yan<sup>1,2</sup>

<sup>1</sup>Neurosurgical department of Scientific Research Institute of Emergency Care n.a. N.V. Sklifosovskiy,

<sup>2</sup>Department of neurosurgery and neurointensive care of MSUMD n.a. A.I. Evdokimov

#### [2-P-33] Risk Factors for Newly-Developed Cerebral Infarction after Surgical Revascularization for Adults with Movamova Disease

Wonhyoung Park, Jae Sung Ahn

Department of Neurosurgery, University of Ulsan College of Medicine, Asan Medical Center, Korea

#### [2-P-34] Middle Cerebral Artery Dissection Causing Recurrent Ischemic Symptoms in a Young Rugby Player

Adam Tucker<sup>1</sup>, Hitoshi Kobata<sup>1</sup>, Takayoshi Negoro<sup>1</sup>, Shigeru Miyachi<sup>2</sup>

<sup>1</sup>Osaka Mishima Emergency Critical Care Center Department of Neurosurgery,

<sup>2</sup>Aichi Medical University Department of Neurological Surgery Neurovascular Intervention

#### [2-P-35] Novel Hybrid Operating Table for Neurovascular Treatment

Bum-Tae Kim, Dong Seong Shin, Jong-Hyun Park

Department of Neurosurgery, Soonchunhyang University Hospital

[2-P-36]

Withdrawn

#### [2-P-37] Management strategies in Large and Giant Intracranial aneurysms – Experience from a tertiary referral center

Dwarakanath Srinivas, Balaparameshwara Rao, Hima Pendharkar, Sampath Somanna National Institute of Mental health and Neurosciences (NIMHANS), Bangalore, India

#### [2-P-38] Outcome of superficial temporal artery to middle cerebral artery bypass in acute period of cerebral infarction

Ik Seong Park, Hoon Km, Jun Sang Kim

Bucheon St. Mary's Hospital, Catholic University of Korea

#### [2-P-39] The surgical Approach for the High Cervical Internal Carotid Artery Stenosis in Carotid Endarterectomy -manupulate dislocation of temporomandibular join-

Isao Kitahara, Ataru Fukuda, Ryou Suzuki, Hiroshi Yonetani

The Department of Neurosurgery ,Chiba Tokushukai Hospital, Chiba, Japan

[2-P-40]

Withdrawn

#### [2-P-41] Multiple saccular aneurysms from left internal carotid artery: A case report and lesson learnt

Ishu Bishnoi

#### [2-P-42] Complete dissection of the sylvian fissure stem according to the morphological feature of the orbital gyrus and the planum polare of the temporal lobe

Yasutaka Imada

Yamada Memorial Hospital

#### [2-P-43] A chronic cerebral hypoperfusion model with cerebral blood flow reduction, angiogenesis and cognitive impairment in rats

Mansour Ahmed, Niizuma Kuniyasu, Rashad Sherif, Fujimura Miki, Tominaga Teiji

DepartmentofNeurosurgery, TohokuUniversityGraduateSchoolofMedicine