Faculty lectures:

**Founding Asmiss and the development and the future of Pasmiss**

**M. Natsuyama, Japan**

**Innovation in Spine Surgery- Dilemma and Balance**

**Tsung-Jen Huang, Taipei Medical University, Taiwan**

**The diagnosis and treatment by the microanatomy using latest MRI and PELD in nonspecific low back pain**

**Akira Dezawa, Japan**

**Thoracoscopic and Laporoscopic Spine Surgery**

**Yutaka Hiraizumi, Japan**

**MIS options in the management of AIS**

**Wong Hee Kit,** **National University of Singapore**

**Combination of Minimally Invasive Spinal Surgery: Oblique Lumbar Interbody Fusion And Biportal Endoscopic Spinal Surgery for Lumbar Spinal Stenosis**

**JS Ahn, Korea**

**Minimally invasive spine stabilization (MISt)  -Current status and Future prospect**

**Ken Ichii, keio univ. Japan**

**Indirect decompression of L-LIF surgery for degenerative lumbar diseases**

**Masatsune Yamagata, Chiba Rosai Hospital, Japan**

**Development story of MISt system- “progress of device and implants”**

**Koji Sato, Japan**

**Evolution of implant fixation from ‘Open to MIS’ in management of metastatic spine disease**

**Naresh Kumar, Singapore**

**Development and Application of 3D Printing Guiding Templates in Complicated Spine Surgeries Ruey Mo Lin, AnNan Hospital, China Medical University, Taiwan**

Panel discussion

Tip and Pearls of spinal canal stenosis by MED, microscopy, UBE, PELD.

Japan Dezawa, Sairyo…

Korea Seung Deok Sun, jsAhn..

Taiwan Huang Yi Hung, Keng-Chang Liu, …

China Guoxin Fan, **Zeng Jiancheng**

India Arvind G Kulkarni

**Thailand** Wasinpongwanich

Cervical Spine

**001 Percutaneous endoscopic decompression for cervical problems**

Fujio Ito, Aichi Spine Hospital, **Japan**

**082 Endoscopic biportal spine surgery in patients with cervical herniated disc disorder**

Seok Bong Jung \* Nack Hwan Kim \*\* \*Jinju Bon Hospital, \* **Korea**

 University Anam Hospital, Biomedical Research Center, Seoul, South Korea

**004 Pearls and pitfalls of endoscopic cervical surgery**

Huang Yi Hung, Chia Yi Christian Hospital, **Taiwan**

**018 Endospine- Endoscopic Anterior Cervical Discectomy & Cord Decompression – Destandau’s technique**

Shrinivas Rohidas, **India.**

**023 Risk factor for the residual limb pain after full-endoscopic cervical foraminotomy**

Koichiro Ono, Center for Spinal Surgery, Nippon Koukan Hospital, Kawasaki, **Japan**

**007 Comparison c-TDR and Hybrid surgery, is it still moving forward?**

Seok Woo Kim, Moon Soo Park, Tae-Hwan Kim,Jae-Keun Oh, Jae yeun Hwang, Dae-Hwan Kim

Spine Center, Hallym University Sacred Heart Hospital, Anyang, South **Korea**

Endoscopic lumbar decompression 1 x6

**101 a prospective randomized comparative study of minimally invasive spinal decompression surgery using arthroscopy and microscopy**

Taewook Kang, Si Young Park, Korea University, Orthopaedic Surgery, Seoul, Korea

**050 Application of the percutaneous endoscopic discectomy (PED) procedure to decompress the lateral recess stenosis in the elderly: percutaneous endoscopic ventral facetectomy (PEVF)** Koichi Sairyo, Tokushima University **Japan**

**080 Resolution of symptom after target oriented decompression using unilateral biportal endoscopic technique**Seung Deok Sun1 Sun’s orthopedics, Seoul, **Korea**

**043 Evaluation of Dural adhesion in Microendoscopic Laminectomy**

Kosuke Misaki, Kazuo Nakanishi, Seiya Watanabe, Hideaki Iba, Toru Hasegawa **Japan**

**012 Clinical Outcomes and Complications of Full-Endoscopic Interlaminar Lumbar Discectomy in an International Hospital in Thailand** Kanthika Wasinpongwanich**Thailand**

**062 The Small Gets Smaller: Feasibility of 14mm Tubular Retractor in the Management of Simple and Complex Cases Of Lumbar Disc Herniations** Arvind G Kulkarni, **India**

**127 Percutaneous endoscopic lumbar surgery: clinical results of 508 operations in 489 consecutive cases** Hao-wei Chang, Hsien-Te Chen, Chien-Chun Chang, Yen-Jen Chen,

Orthopedic department of China Medial University Hospital, Taiwan

**121 Percutaneus endoscopic interlaminar decompression for lumbar lateral recess stenosis in elderly patients Zeng Jiancheng, West China Hospital of Sichuan University, Chengdu, China**

Endoscopic lumbar decompression 2x7

**108 Clinical outcomes after transforaminal percutaneous endoscopic discectomy related to the degree of disc migration in lumbar disc herniation**

Kazuma Wada, Akihiro Nagamachi, Takamatsu Municipal Hospital, Japan

**115 Percutaneous Endoscopic Transforaminal Lumbar Decompression for Treating Lumbar stenosis and Sciatica.**Yu,Ching Hsiao, Taoyuan General Hospital National Taiwan University Hospital, Taiwan

**067 Transforaminal percutaneous endoscopic lumbar discectomy using foraminoplastic outside-in technique under local anesthesia**

Fumitake Tezuka, Chikawa, and Koichi Sairyo, Tokushima University, Japan

**065 Trajectory Quantification and Guided Punctures with Isocentric Navigation in Posterolateral Endoscopic Lumbar Discectomy: technical innovation**

Guoxin Fan, Shanghai Tenth People’s Hospital, Tongji University School of Medicine, **China**

**022 Spinal Stenosis Treated by Percutaneous Endoscopic Lumbar Decompression Through Transforaminal Versus Interlaminar Approach Under Local Anesthesia and Outpatient Setting**

Ting Chun Huang, National Taiwan University Chu-Tung Branch, Taiwan

**070 Percutaneous endoscopic lumbar discectomy for the high school athletes**

Fumitake Tezuka, Koichi Sairyo, Tokushima University, Japan

**084 Preliminary result of endoscopic spine surgery in degenerative spine disease**

Chang Chien-Chun, Chen Hsien-Te, Chen Yen-Jen, China Medical University Hospital, Taichung, Taiwan

**125 Treatment of lumbar spinal stenosis by percutaneous endoscopic interlaminar decompression Zeng Jiancheng, West China Hospital of Sichuan University, Chengdu, China**

**Endoscopes L5S1=x4 redo x3**

**011 Percutaneous Endoscopic Lumbar Discectomy Strategy for L5-S1 Disc Herniation Based on Image Analysis: a Review of 301 Cases** Hsi-Kai Tsou, Taichung Veterans General Hospital, **Taiwan**

**059 Percutaneous endoscopic surgery via transforaminal approach for L5/S intra-canal disc herniation- Relation between bone resection volume and pelvic height**

Hiroaki Manabe, Fumitake Tezuka, Kazuta Yamashita, Yoichiro Takata, Toshinori Sakai,

Takashi Chikawa, Koichi Sairyo Tokushima University, Tokushima, **Japan**

**066 Surgical considerations for percutaneous endoscopic lumbar discectomy at L5/S1 level with quantified assessment**

Guoxin Fan, Dongdong Wang, Wangcheng Xie, Hailong Zhang, Shisheng He.

Shanghai Tenth People’s Hospital, Tongji University School of Medicine, **China**

**122 Percutanous Endoscopic Interlaminar Discectomyfor Sequestered Disc Herniation of L5-S1 Zeng Jiancheng, West China Hospital of Sichuan University, Chengdu, China**

**091 Clinical results of Percutaneous Endoscopic Treatment for Recurrent Disc Herniation: Interlaminar versus Transforaminal Approach**

Keng-Chang Liu, Dalin Tzu Chi General Hospital, Chia-Yi, **Taiwan**

**124 The mid-term clinical outcome and recurrence rate of Percutaneus endoscopic interlaminar discectomy for lumbar disc herniation Zeng Jiancheng, China**

**116 Good and poor indications for endoscopic lumbar spine revision surgery**

Jung-Hao Hsieh, MIS spine center, Yuan’s General Hospital, Kaohsiung, Taiwan

**069 Transforaminal percutaneous endoscopic lumbar decompression surgery as the revision surgery** Fumitake Tezuka1, Takashi Chikawa1, and Koichi Sairyo,  Tokushima University, Japan

MIS stabilization 9

**081 Comparison of multifidus muscle atrophy after posterior lumbar interbody fusion with conventional and cortical bone trajectory**Cheng-Hsing Kao, Jhong Jheng Spine & Orthopedic Hospital, Kaohsiung, Taiwan

**053 Clinical Results of Unilateral Biportal Endoscopic Lumbar Interbody Fusion (ULIF) Compared with Traditional Posterior Lumbar Interbody Fusion (PLIF)**

Seung-Hyun Choi, ParkWeonWook Hospital, Busan, South **Korea**

**120 OLIF** **combined with** **anterior fixation in the treatment of lumbar spinal stenosis with** **degenerative instability**

**Zeng Jiancheng, West China Hospital of Sichuan University, Chengdu, China**

**054 Efficacy of indirect decompression by oblique lumbar interbody fusion**

Hyoung-Yeon Seo, Sung-Kyu Kim, Yong-Jin Park,Chonnam National University Hospital **Korea**

**005 Learning curve of minimally invasive surgery oblique lumbar interbody fusion for degenerative lumbar diseases** Huang Yi Hung, Chia Yi Christian Hospital, **Taiwan**

**016 Percutaneous endoscopic true transforaminal lumbar intervertebral fusion (PE-TLIF)- surgical technique and the short-term result** Yoshihiro Ishihama, , Takashi Chikawa, Koichi Sairyo Tokushima University, Japan

**104 Oblique Lateral Interbody Fusion for Degenerative Lumbar Diseases** Jwo-Luen PaoFar-Eastern Memorial Hospital, New Taipei, **Taiwan**

**046 Comparison of recurrent rate between discectomy alone and discectomy with coflex in Herniated nucleus** Taweechai Tejapongvorachai King Chulalongkorn Memorial Hospital, Bangkok, Thailand

**Unilateral Instrumented TLIF in High Grade Spondylolisthesis.** Wen-Hsiang Chou, **Taiwan**

**Comparison results percutaneous endoscopic decompression vs. MISS + dynamic stabilization** Shing-Sheng Wu, **Taiwan**

Deformity

**090 Clinical outcomes of percutaneous endoscopic transforaminal decompression (PETD) for degenerative lumbar lateral recess stenosis associated with degenerative scoliosis**

Keng-Chang Liu Dalin Tzu Chi General Hospital, Chia-Yi, **Taiwan**

**028 Surgical management of sagittal imbalance in adult degenerative thoracolumbar kyphoscoliosis: preoperative planning using computed tomography in the supine position**

TAKASHI CHIKAWA*,* Fumitake Tezuka,Yoichiro Takata, Toshinori Sakai, Koichi Sairyo

Department of Orthopedic Surgery, Tokushima University Graduate School, **Japan**

**047 How much segmental lordosis can be restored by anterior column release (ACR) for degenerative flat back?**

Se-Jun Park, Samsung Medical Center, Sungkyunkwan University, Seoul, **Korea**

**086 A Compound Method to Manage Symptomatic Rigid Adult Scoliosis**

Kung-Chia Li, MD, PhD, Professor

Chia-Yi Yang-Ming Hospital, Chia-Yi, **Taiwan**

infection

**018 New surgical treatment strategies of minimal invasive percutaneous endoscopic surgery for infectious spondylodiscitis**

Chia-Yu Lin, Hsien-Te Chen, Chien-Chun Chang, Yen-Jen Chen, Horng-Chaung Hsu

Orthopedic department of China Medial University Hospital, **Taiwan**

**052 Experience in minimally invasive spinal stabilization (MISt) treatment for****infectious spondylitis** Kaneko Hajime , Hasegawa ToruKawasaki medical school hospital, **Japan**

 **106 Minimally Invasive Transforaminal Lumbar Interbody Debridement and Fusion with Percutaneous Posterior Pedicle Screw Fixation: An Alternative Approach for Lumbar Spondylodiscitis**

Tsung-Ting Tsai, Michael Jian-Wen Chen, Ming-Kai Hsieh, Fu-Chen Kao, Tsai-Sheng Fu, Po-Liang Lai, Chi-Chien Niu, Chang Gung Memorial Hospital, **Taiwan**

**015 The Rationale of Surgical Treatment in Pediatric Spine Tuberculosis**

Komang Agung I. Orthopedic and Traumatology Department, Dr. Soetomo Hospital Surabaya

Medical Faculty Airlangga University Surabaya, **Indonesia**

**099 Posterior only approach for simultaneous anterior reconstruction and posterior instrumentation to treat infectious vertebral osteomyelitis causing pathologic fracture**

Ching Yu Lee, Taipei Medical University Hospital, **Taiwan**

Tumor

**048 Clinical result of CT-guided percutaneous vertebroplasty for metastatic spinal tumor**

Akinobu Suzuki, Hidetomi Terai, Masatoshi Hoshino, Hiromitsu Toyoda, Shinji Takahashi, Koji Tamai, Hiroaki Nakamura, Osaka City University Graduate School of Medicine, **Japan**

**017 Endoscopic excision of Intradural extramedullary SOL with Endospine- Destandau’s technique** Shrinivas M. Rohidas  **India**

**109 Basic concepts in metal work failure after metastatic spine tumour surgery**

Naresh Kumar, **Singapore**

**114 Symptomatic Implant or Construct Failure After Metastatic Spine Tumour Surgery**

Naresh Kumar, **Singapore**

**123 The clinical efficacy of percutaneous kyphoplasty for the management of osteolytic thoracolumbar tumour**

Zeng Jiancheng, West China Hospital of Sichuan University, Chengdu, China

**112 Factors Influencing Extended Hospital Stay in Patients Undergoing Metastatic Spine Tumour Surgery and Its Impact on Survival**

Naresh Kumar, **Singapore**

**113 Evaluation of Prognostic Factors and Proposed Changes to the Modified Tokuhashi Score in Patients With Spinal Metastases From Breast Cancer**

Kimberly-Anne Tan, **Singapore**

**Sacrum-Pelvis**

**033 The comparison of sacroiliac joint anatomy of Taiwanese, Japanese, and Caucasian populations for sacroiliac joint fusion device implantation - a multi-national study** Meng-Huang Wu, Taipei Medical University Hospital ,Taiwan

**045 Treatment Option for Sacroiliac Pain Syndrome**

 Chao-Jan Wang Wei -Gong Memorial Hospital, Taiwan

**000 Insufficient sacral fracture**

王建國 NCKUH

**000 percutaneous sacral fixation**

陳崇桓 kmuh

**Basic research**

**010** **Morphological analysis of the intervertebral foramen**

Masahiro Kashima1 Takashi Chikawa2 Koichi Sairyo2

1Department of Orthopedic Surgery, Anan Kyoei Hospital

2Department of Orthopedics, Tokushima University, **Japan**

**074 Reducing mechanical stress in immature pediatric spondylolisthesis can make remodeling of sacral dome: a study of spondylolisthesis rat model**

Hiroaki Manabe, …Takashi Chikawa, Koichi Sairyo Tokushima University, **Japan**

**076 Association between hypertrophy of ligamentum flavum in lumbar spinal canal stenosis and increased myofibroblasts in dorsal layer of ligament**

 Fumio Hayashi1 Kosaku Higashino 2 Masatoshi Morimoto1 Yuichiro Goda3 Nori Sato4

 Yuki Morimoto5, Toshinori Sakai1, Yoichiro Takata1, Fumitake Tezuka1, Koichi Sairyo1  **Japan**

**077 Estrogen receptor (ESR) and Ladybird Homeobox 1 (LBX1) mRNA Expression in Severe Adolescent Idiopathic Scoliosis: a preliminary study**

Sakti YM\*\*\*, Lanodiyu ZA\*, Heriyanto DS\*\* I**ndonesia**

**027 Multiple bridging bone patterns using new anterior bone bridging (ABB) cage in lumbar interbody arthrodesis**

Kwang-Sup Song MD. Chung-Ang University Hospital, **Korea**

Innovative Techniques

IMAGING

**013 Feasibility of virtual reality combined with isocentric navigation in percutaneous transforaminal endoscopic discectomy: a cadaver study**

Shisheng He, M.D.; Guoxin Fan, M.D.; Zhi Zhou, M.D. **China**

**071 Virtual reality and Mixer Reality in the spine surgery -Evaluation of Intraoperative Use-cases- Wataru Narita** KAMEOKA Municipal Hospital ,Kyoto, **Japan**

**030 3D Endoscope for Endoscopic Spine Surgery with Endospine- Destandau’s technique**

 Shrinivas Rohidas **Prakruti** clinic. Dr. Rohidas’s centre for minimally invasive spine & neurosurgery.

Kolhapur. Maharashtra State **India.**

**031 Reliability measurement of EOS for spinal pelvic index on the sagittal plane of spine and pelvis** Sang-Bum Kim, You-Gun Won, Chang-Hwa Hong\*, Young-Ki MinKonyang University, Daejeon, Korea \*Department of Orthopedic Surgery, Soonchunhyang University , Cheonan, **Korea.**

**073 The assessment of vertebra body rotation with the pedicles in simple radiographs: A new estimation method.** Suk Jung Lee, MD1, Hyun-Joo Lee, MD2, Sanghyun Joung, PhD3, Il-Hyung Park, MD2,3, Dae Moo Shim4

Department of Orthopedic Surgery, Keimyung University School of Medicine, Republic of Korea1 Department of Orthopedic Surgery, Kyungpook National University Hospital, Republic of Korea2 Medical Device and Robot Institute of Park, Daegu, Korea3 Department of Orthopaedic Surgery and Institute of Wonkwang Medical Science, Wonkwang University School of Medicine, Iksan, **Korea4**

Innovative Techniques

Navigation 3D print robot

**Customized 3D printing guiding template for pedicle screw fixation in upper cervical spine** Chih-Lung Lin

Department of Neurosurgery, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

**087 Unilateral Spinous Process Noncovering Hook Type Patient- specific Drill Template for Thoracic Pedicle Screw Fixation: A Pilot Clinical Trial and Template Classification (I)**

**088 Unilateral Spinous Process Noncovering Hook Type Patient- specific Drill Template for Thoracic Pedicle Screw Fixation: A Pilot Clinical Trial and Template Classification (II)**

Yougun Won1, Yoo Jung Park2, Gi Soo Lee3, Sangbum Kim1, Byung Hak Oh11. Konyang University, Daejeon 2. Yonsei University College of Medicine, Wonju, 3 Chungnam National University Hospital, Daejeon, South **Korea**

**037 Comparison of Percutaneous Pedicle Screw Fixation of Thoracolumbar Fractures with C-arm and O-arm Navigation**

Shenghao Wanga, Kai Zhanga, Qingfeng Dinga, Peng Yanga, Huilin Yanga,\*

Soochow University, Suzhou, **China.**

**098 Is Bony Attachment Necessary for Dynamic Reference Frame in Navigation-assisted Minimally Invasive Lumbar Spine Fusion Surgery?**

Ming-Chau Chang, Taiwan

### 034 Learning curve of robotic spine surgery - Potential impact of teamwork Yu-Feng Su

Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

Complication and Safety

**119 Complications of Percutaneous Endoscopic Lumbar Discectomy via Interlaminar Approach** Jian-cheng Zeng, West China Hospital of Sichuan University, Chengdu, China

**044 Intraoperative free-run EMG for prevention of iatrogenic injury during PELD under general anesthesia** Jun-ichiro Nakamura, Tomoyuki Setoue, Jun HaraKawasaki-saiwai hospital **Japan**

**111 Intra-Operative Neuromonitoring (IONM): Is There a Role in Metastatic Spine Tumour Surgery?** Naresh Kumar, **Singapore**

**055 The incidence of nerve root injury by highspeed drill can be reduced by chilled saline irrigation in a rabbit model** Koji Tamai, Akinobu Suzuki, Shoichiro Ohyama, Tomonori Ozaki, Hidetomi Terai, Masatoshi Hoshino, Hiromitsyu Toyoda, Shinji Takahashi, Yusuke Hori, Hiroaki Nakamura, Osaka City University, **Japan**

**096 The Critical Role of Subfascial Suction Drainage in Preventing Post-operative Spinal Epidural Hematoma Following Minimally Invasive Spine Surgery** Jwo-Luen PaoFar-Eastern Memorial Hospital, New Taipei, **Taiwan**

**102 Effect of topical gelatin-thrombix matrix sealant on intraoperative or perioperative bleeding folLowing single level lumbar posterior decompression and fusion** Taewook Kang, Park Si Young, Korea University, Seoul, Korea

**060 The practice of continuation of antiplatelet therapy during the perioperative period in lumbar Minimally Invasive Spine Surgery (MISS): "How different is the morbidity in this scenario?"**Arvind G Kulkarni , Bombay Hospital, Mumbai, India

Complication and Safety

**014 Concentric stereotactic technique of percutaneous endoscopic transforaminal discectomy on radiation exposure to surgeons**

Shisheng He, Guoxin Fan, **China**

**061 Surgeon, Staff, and Patient Radiation Exposure in MIS TLIF: Impact Of 3D CT-Based Navigation in comparison to Conventional Fluoroscopy Aided Technique**

Arvind G Kulkarni Mumbai, India

**083 Is Postoperative Spinal Orthosis Necessary for Minimally Invasive Lumbar Spine Fusion Surgery?**  Hsi-Hsien Lin, Taipei Veterans General Hospital, Taiwan

**085 Complication of Vertebroplasty : an overlook issue**

Chao-Jan Wang, Wei -Gong Memorial Hospital, **Taiwan**

**126 Interspinous/Interlaminar Implants: Surgical Technique & Potential Pitfalls**

Shang-Won Yu, Shih-Chieh Yang, Yuan-Kun Tu, E-Da Hospital/I-Shou University, **Taiwan**

**vertebral compression fracture**

**006 Increased sagittal vertical axis is associated with less effective control of acute pain following vertebroplasty**

Ki-Tack Kim1, Kyung Hee University Hospital Orthopedic surgery 2, Seoul, Korea

**039 Vertebral fixation for osteoporotic vertebral compression fracture -**

**A long-term follow-up using expandable pillar with bone grafting**

Po-Quang Chen1, 2 MD.,PhD., Jui-Yang Hsieh1, 3 MD., and Yu-Chuan Hsieh1, RN

National Taiwan University Hospital.Min-Sheng General Hospital. Jinshan branch, National Taiwan University Hospital. Taiwan

**092 A Novel Percutaneous Expandable Titanium Kyphoplasty Device (PETD) with Better Height Restoration & Restoration of Sagittal Equilibrium**

Shao Keh Hsu徐少克Tungs’ Taichung MetroHarbor Hospital , Taichung , Taiwan

**002 Integrated or separated? Two types of bone cement distribution in Kyphoplasty and the clinical efficacy analysis** Hao Liu, Tao Liu, Huilin Yang Suzhou, Jiangsu, China

**042 Comparison of Clinical outcomes and Radiological Results of Kyphoplasty without Ballooning versus Conventional Vertebroplasty for Osteoporotic Vertebral Compression Fractures**

Min-gu Jang, Ho-jin Lee, Jae-sung Ahn, Eugene J. Park

Chungnam National University Hospital, Daejeon, South Korea

**vertebral compression fracture**

**029 Surgical treatment of osteoporotic vertebra compression fracture at thoraco-lumbar levels: Only pedicle screw constructs with PMMA augmentation** Deuk Soo Jun Gil medical center, college of medicine Gachon university, Incheon, Korea

**041 Vertebroplasty appears a viable choice for elderly people with pathological thoracolumbar fractures** Kuo-Yuan Huang National Cheng Kung University, Tainan, Taiwan

**117 C-arm Based Image-guided Puncture System for Percutaneous Vertebroplasty-Part I Preliminary Study** Yu-Ching Hsiao1, Hao-Chuan So1, Jing-Jing Fang1, Reuy-Mo Lin2

1 Department of Mechanical Engineering, National Cheng Kung University,

 An-Na Hospital, China Medical University, Tainan, Taiwan

**118 C-arm Based Image-guided Puncture System for Percutaneous Vertebroplasty-Part II Mechanism** Chun-Chung Lin1, Shang-Wei Huang1, Jing-Jing Fang1, Reuy-Mo Lin2, Cheng-Li Lin3, Sheng-Ming Lan4 National Cheng Kung University, Tainan, Taiwan

**106 Survival rate and risk factor analysis based on new fracture after kyphoplasty**

Jung-Hoon Kim, Dong-Hyok K**im**, Inje University Ilsan Paik Hospital, Goyang. **Korea**

**003 Percutaneous kyphoplasty for the treatment of Kümmell’s disease with sclerosis around the intravertebral cleft** Hao Liu, Tao Liu, Huilin Yang Suzhou, Jiangsu, China

**103 Revision Strategies for Failed Vertebroplasty: a Algorithm Proposal by Modified Dynamic Radiographs**

Yen-Jen Chen, Chien-Chun Chang, Hsien-Te Chen, Horng-Chaung Hsu

China Medical University, Taiwan

Miscellaneous

**100 The Efficacy to Delay the Surgical Need by Transcaudal Epidural Steroid Injection in Degenerative Lumbar Spinal Stenosis with and without Listhesis: 7-Year Retrospective Study**

**Warat tassanawipas,** Chaisiri Chaichankul, Chaiyos Chaichankul,Pheeraphan Srisook , Nantawat Uttamo

Department of Orthopaedics, Phramongkutklao Hospital and College of Medicine,

, Veterans General Hospital, Bangkok, Thailand

**021 Patients with Spinal Stenosis and Back Pain treated with Combined Percutaneous Endoscopic Lumbar Decompression and Radiofrequency Ablation** Ting Chun Huang National Taiwan University Chu-Tung Branch, **Taiwan**

**009 Is Long-segment fixation a rule in fractures associated with Ankylosing Spondylitis?**

Arvind G Kulkarni, Varun K Agarwal, Nandish Kumar KC , Avinash Kumar

Mumbai Spine Scoliosis & Disc Replacement Centre, Bombay Hospital, Mumbai, **India**

**046 Comparison of recurrent rate between discectomy alone and discectomy with coflex in Herniated nucleus**

Taweechai Tejapongvorachai King Chulalongkorn Memorial Hospital,Bangkok,Thailand

case report

**019 Twist technique for removal of spinal extradural arachnoid cyst: technical note**

 Eun Sang Soo, **S**ang Soo Eun Orthopaedic surgeon in Wooridul Spine Hospital, Seoul, **Korea**

**026 Unusual Cauda Equina Syndrome due to Spontaneous Adhesive Arachnoiditis of Spine**- A Case Report - Seung-Pyo Suh, MD, Sung-Ha Hong, MD, Jae-Nam Kim, MD

Department of Orthopedic Surgery, Sung-Ae Hospital, Seoµl, **Korea**

**110 Denosumab: a potential treatment option for aneurysmal bone cyst of the atlas**

Ravish Shammi Patel1 Chetan Anil Dhamne2 Anil Gopinathan3 Nishant Kumar1 Naresh Kumar1, Singapore

**032 Vertebral Body Fracture After Oblique Lumbar Interbody Fusion in Two Patients : Case Report** Sang-Bum Kim, You-Gun Won, Young-Ki Min Konyang University, Daejeon, **Korea**

**063 Strategical therapy for coarctation of aorta complicated with spontaneous spinal epidural hematoma** Tzu-Tsao Chung1, Kun-Ting Hong1, Tung-Han Tsia11,2, Yuan-Hao Chen1

1. Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
2. Chi-Hsien Spine Hospital, Kaohsiung, **Taiwan**

**097 Cement-Augmented Pedicle Screw Insertion Assisted by Spinal Robotic Systems for Widespread Spinal Metastasis – A case report**

Meng-Huang Wu,Ching-Yu Lee,Tsung-Jen Huang,Taipei Medical University, Taiwan

Posters

**051 Complication and its countermeasure in endoscopic spine surgeries for cervical radiculopathy** Shoji Yabuki, Shinichi Kikuchi, Shinichi Konno**,**Fukushima Medical University, Japan

**128 Percutaneous endoscopic interlaminar lumbar discectomy for superiorly sequestrated disc L4/5: A case report with technical review** Yen-Yao Li, Chien-Ying Lee, Chang-Gung Memorial Hospital in Chiayi, Taiwan

**057 Radiological Comparison of Osteoporotic Vertebral Compression Fractures:**

**Presence or absence of trauma** Kwan Ho Park, M.D., Tae Wan Kim, M.D., Ju Chul Yang, MD

VHS Medical Center, Seoul**, Korea**

**020 How To Make A Decision Between Vertebroplasty And Kyphoplasty?**

Won Rak Choi Hanyang University College of Medicine, Seoul, Korea

**025 Relationship between degenerative human disc and autophagy expression**

Kee-Won Rhyu1, Young-Yul Kim2, Meiling Quan2

Department of Orthopedic Surgery, St. Vincent's Hospital, The Catholic University of Korea1 , Department of Orthopedic Surgery, Daejeon St. Mary's Hospital, The Catholic University of **Korea**

**036 NEUROLOGIC DEFICIT DUE TO DISC RUPTURE AFTER OPERATION FOR C3-4 FRACTURE-DISLOCATION** Soh JWSoonchunhyang University Cheonan Hospital, **Korea**

**056 Uncommon surgical complication of paraspinal gossypiboma**

Kwan Ho Park, M.D., Tae Wan Kim, M.D., Ju Chul Yang, MD VHS Medical Center, Seoul, **Korea**

**072 Cervical ossification of the yellow ligament (OYL) mimicking rotator cuff tear**

- case report-Suk Jung Lee, MD1, Eun-Seok Son, MD1, Hyun-Joo Lee, MD2, Doo hyun Kwon, MD3, Dae Moo Shim, , Keimyung University School of Medicine, Kyungpook National University Hospital, Andong Hospital, Andong, Korea3Wonkwang University School of Medicine, Iksan, **Korea4**

**075 High cervical ossification of the posterior longitudinal ligament (OPLL) mimicking from cerebral infarction** Suk Jung Lee, MD1, Hyun-Joo Lee, MD2, Woo-Kie Min, MD2, Doo hyun Kwon, MD3, Dae Moo Shim, MD4 Keimyung University Kyungpook National University Hospital,, Andong Hospital,, Wonkwang University School of Medicine, Iksan, **Korea4**

**078 Case review of the Percutaneous pedicle screw Fixation on Fracture of the Thoraco-Lumbar Spine** Ki-Youn Kwon , Heui-Jeon Park**,**Wonju Severance Christian

Hospital, **Korea**

**093 Comparative study on one-level oblique lumbar interbody fusion and minimally invasive surgery transforaminal lumbar interbody fusion for degenerative spondylolisthesis grade 1**

Jian Wang, MD,a Yue Zhou, MD a Army Military Medical University, Chongqing **China**

**094 Perioperative complications associated with minimally invasive surgery oblique lumbar interbody fusion for degenerative lumbar diseases in 113 patients**

Jian Wang, MD,a Yue Zhou, MD a Army Military Medical University, Chongqing **China**

**095 Learning curve of minimally invasive surgery oblique lumbar interbody fusion for degenerative lumbar diseases**

Jian Wang, MD,a Yue Zhou, MD a Army Military Medical University, Chongqing **China**

Others

\*\* MISt approach for degenerative scoliosis

Hasegawa Kawasaki Medical School

biportal endoscopic spinal surgery

Park, Weon-wook Korea

Indirect neural decompression by minimally invasive lateral lumbar fusion

**Jae Chul Lee**, Soonchunhyang University, Korea

DTI (diffusion tensor imaging) of spinal cords in patients with cervical Myelopathy. Where we are

Seok Woo Kim

What is the basic science andHow advance MISS nowadays

Prof. Zairin Noor, MD, Ph.D, MM