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APSS-Medtronic Spine Fellowship 2024 Report

Fellow:

Wongthawat Liawrungrueang, M.D. (Orthopaedic Spine Surgery)

Current position: Head of the Department of Orthopaedics

Affiliate: Orthopaedics Department, University of Phayao, Phayao, Thailand



**Wongthawat
Liawrungrueang**
University of
Phayao,
Orthopaedic
surgery, Thailand

Host:

Prof. Ho-jin Lee, M.D., PhD. (Orthopaedic Spine Surgery)

Current position: Chief of Spine at Chungnam National University Hospital

Affiliate: Chungnam National University Hospital, Daejeon, South Korea



Ho-Jin Lee
Chungnam
National University,
Orthopaedic
Surgery, Korea

Education and training:

Asia Pacific Spine Society Fellowships Program, Chungnam National University Hospital,
Daejeon, South Korea in Minimally Invasive and Endoscopy Spine Surgery

Duration of fellowship:

1 September 2024 – 30 November 2024



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Introduction:

Chungnam National University Hospital (CNUH), established in 1972, is a prominent medical institution located in Daejeon, South Korea. As a teaching hospital affiliated with Chungnam National University, it plays a pivotal role in medical education, research, and patient care. CNUH offers comprehensive healthcare services across 33 medical departments and 17 specialized centers, including the Daejeon Local Cancer Clinic and the Organ Transplant Center. The hospital is recognized for its advanced medical facilities and commitment to patient-centered care, serving as a leading healthcare provider in the central region of Korea.

Professor Ho-Jin Lee, M.D., Ph.D., is a highly experienced orthopaedic spine surgeon at Chungnam National University Hospital in Daejeon, South Korea. He specialises in minimally invasive spine surgeries, including biportal endoscopic spinal procedures. His research focuses on innovative surgical techniques for lumbar spinal stenosis and foraminal disc herniation. His studies on biportal endoscopic spinal surgery for lumbar spinal stenosis, highlighting its benefits in reducing tissue damage and promoting faster recovery. Additionally, he contributed to the development of the extraforaminal approach in biportal endoscopic spinal surgery, offering a new technique for transforaminal decompression and discectomy. Professor Lee's expertise and contributions have significantly advanced the field of spine surgery, particularly in minimally invasive techniques.

In early 2024, many medical interns and residents in South Korea resigned in protest of a government plan to increase medical school admissions by 2,000 students annually. The aim was to address the country's low doctor-to-population ratio and aging population. This mass



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resignation caused significant disruptions in hospitals, leading to increased workloads and a reduction in the number of surgeries and treatments performed. However, Professor Ho-Jin Lee encouraged me to gain as much experience as possible. He allowed me to assist in his advanced operations and utilized his strong academic network to facilitate my observation and practice at other hospitals in Daejeon and Seoul, South Korea.

I wish to convey my heartfelt gratitude to Professor Ho-Jin Lee and the Asia Pacific Spine Society (APSS) for the incredible opportunity to partake in the three-month spinal surgery fellowship. This experience, his first as a spine fellow beyond the borders of my home country, has been nothing short of transformative. As a spine surgeon, this journey has been a rare and treasured opportunity to immerse himself in a new realm of surgical mastery, enhancing both his clinical acumen and depth of understanding. The fellowship was more than just an expansion of technical knowledge; it was a gateway to global insights, fostering connections and collaboration with world-class experts and igniting a renewed passion for advancing patient care through innovative spine surgery techniques. This experience has not only refined his surgical repertoire but has also broadened his vision as a practitioner dedicated to pushing the boundaries of spinal care.

Sincerely,

Wongthawat Liawrungrueang

(Wongthawat Liawrungrueang, M.D.)



Routine Weekly Schedule

The weekly fellowship routine at CNU Hospital was comprehensive of clinical observation, surgical practice, academic engagement, and collaboration. Mondays were dedicated to observing OPD clinics and preoperative cases with Prof. Ho Jin Lee, while Tuesdays involved discussions on complex cases and participation in spine surgeries. Wednesdays included morning conferences, preoperative planning, and observing biportal endoscopic surgeries at CNU and Daejeon Woori Hospital with Dr. Cheol Wung Park. Thursdays were flexible for extra OPD activities, research discussions, literature reviews, or observations at other hospitals in Seoul. Fridays were reserved for academic activities, including meetings and conferences with various Korean spine societies and collaborative case discussions with other universities in Daejeon.

Day	Location	Activities
Monday	CNU Hospital	Observe the OPD clinic and preoperative case with Prof. Ho Jin Lee, M.D, Ph.D.
Tuesday	CNU Hospital	Interesting case discussion and operative spine surgery with Prof. Ho Jin Lee, M.D, Ph.D.
Wednesday	CNU Hospital and Daejeon Woori Hospital	Morning conference, pre-op planning, and ward round; Observe Biportal endoscopic surgery with Cheol Wung Park, M.D, Ph.D. (President of the Korean Minimally Invasive Spine Surgery Society (KOMISS))
Thursday	CNU Hospital	Extra-OPD with Prof. Ho Jin Lee, M.D, Ph.D. or Research discussion and literature review or Observation and practice at other hospitals in Seoul, South Korea.
Friday	CNU Hospital	Academic day: Meeting and conference with the Korean Society of Spine Surgery or AO-Spine Korean or Society of Minimally Invasive Spine Surgery or collaboration case discussion with another university in Daejeon



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Summary Activity and academic work

During your September to November 2024 fellowship, you gained extensive clinical exposure and academic involvement at Chungnam National University Hospital under Prof. Ho Jin Lee, observing advanced spine surgeries such as UBE, KLIF, and OLIF. You attended key conferences, including the Neuro Spine Congress and the Kyung Hee Spine Update, and presented at significant events like the Korean Biospine Society meeting and the ASEMISS Conference in the USA. Your research included developing a systematic review on UBSS with interbody fusion, involving thorough literature reviews and manuscript drafting. You also strengthened international collaboration through teaching commitments in the USA and engagements with spine societies in South Korea and Thailand, highlighting your active role in advancing spine surgery knowledge and practices. This is my summary of activities from September to November 2024 during your fellowship and professional engagements:

September 2024 (First month)

- **Start of Fellowship at Chungnam National University Hospital (CNUH):**
 - Arrival and orientation, registration for the fellowship program, and initial meetings with Prof. Ho Jin Lee.
- **Operative Observations and Case Discussions:**
 - Observed a variety of complex surgeries at Daejeon Woori Hospital, including UBE decompressions, KLIFs, and interlaminar procedures with detailed notes on complications and techniques.
- **Academic Engagements:**



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- Attended lectures and conferences, including the Neuro Spine Congress 2024 by the Korean Spinal Neurosurgery Society (KSNS) and a lecture by Prof. Cheol Wung Park on endoscopic spine surgery history.
- **Research and Manuscript Work:**
 - Initiated the development of a systematic review on UBSS with interbody fusion, involving literature review and proposal drafting.
- **Chuseok Holidays (14th - 19th September):**
 - No activities due to national holidays in South Korea.
- **Collaborative Meetings:**
 - Participated in discussions at Catholic University of Korea, Seoul St. Mary's Hospital with Prof. Jin-Sung Kim, focusing on collaborative research and case presentations.
- **Society Meetings:**
 - I am engaged in the Korean Society of Spine Surgery and Minimal Invasive Society Meeting 2024.

October 2024 (Second month)

- **Clinical Observations and Case Studies:**
 - Continued to observe complex UBE and OLIF surgeries at CNUH and other hospitals, with detailed participation in case discussions and preoperative planning.
- **Invited Speaker:**
 - Delivered a presentation at the 6th Annual Meeting of the Korean Biospine Society, sharing expertise in minimally invasive spine surgery techniques.



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- **Research Progress:**
 - Focused on manuscript development and data correction for the systematic review on UBSS.
- **Visits to Major Institutions:**
 - Observed surgical cases at Seoul National University Bundang Hospital and engaged with prominent spine surgeons such as Prof. Yeom.
- **RCOST Annual Meeting:**
 - Participated in the 46th RCOST Annual Meeting 2024 in Thailand, contributing to discussions with the Royal College of Orthopaedic Surgeons of Thailand.
- **ASEMISS Conference:**
 - Traveled to Jersey City, USA, as an invited speaker at the American Society of Endoscopic and Minimally Invasive Spine Surgery (ASEMISS) Annual Conference, contributing as a faculty member and delivering presentations.

November 2024 (Final month)

- **Continued Clinical and Academic Work:**
 - Engaged in OPD clinics, preoperative planning, and case discussions with Prof. Ho Jin Lee at CNUH.
 - Observed surgeries involving revision and complex lumbar decompressions, enhancing hands-on learning.
- **Conferences and Educational Participation:**



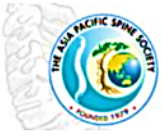
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- Attended the Kyung Hee 17th Spine Update 2024 Conference and the AO Spine Advanced Seminar on complex cervical and thoracolumbar spine surgeries at Chung-Ang University Hospital.
- **Final Fellowship Activities:**
 - Final observations and completion of manuscript work.
 - Conducted summary meetings with Prof. Ho Jin Lee to review fellowship achievements and plan next steps for publication and ongoing research.

Key Highlights

- **Hands-on Clinical Experience:**
 - Observed and participated in surgeries involving cutting-edge spine surgery techniques, including UBE decompressions, KLIF, OLIF, and full-endoscopic methods.
- **Academic and Research Contributions:**
 - Worked on a systematic review manuscript on UBSS with interbody fusion, involving extensive literature reviews, data analysis, and proposal writing.
- **Professional Presentations:**
 - Delivered presentations at major conferences and seminars, showcasing expertise in endoscopic spine surgery and engaging in collaborative discussions.
- **Collaborative and International Experience:**
 - Strengthened international ties through teaching commitments in the USA and participation in notable spine societies and meetings in South Korea and Thailand.



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This period of my fellowship reflects intensive clinical exposure, active research participation, and significant contributions to academic and professional spine surgery communities.

Summary Case Logs Book (1/9/2024 to 30/11/2024)

Between September 1, 2024, and November 30, 2024, a comprehensive record of spine surgery cases at CNU Hospital and Daejeon Woori Hospital included patients ranging from 55 to 73 years old, with both male and female patients having diverse medical histories such as hypertension, diabetes, osteoporosis, and previous spine surgeries. Diagnoses primarily involved various types of spinal stenosis, low-grade spondylolisthesis, and radiculopathy. Surgical procedures predominantly consisted of unilateral biportal endoscopic (UBE) decompressions, KLIF, and full-endoscopic techniques, with occasional advanced procedures like OLIF and XLIF with screw fixation. Complications were minimal, with only one instance of a dural tear, which was successfully repaired using Tecoseal. Overall, the outcomes reflected a high level of surgical precision with most cases reporting no complications. This summary table includes all cases from 1/9/2024 to 30/11/2024, complete with patient demographics, diagnosis, surgical details, notes, and any complications in CNU Hospital and Daejeon Woori Hospital.

Date	Age	Gender	Medical History	Diagnosis	Operation	Complications
3/9/2024	67	Male	Hypertension, Diabetes	Spinal stenosis with low migration disc L34, L45	UBE decompression L34, L45 with discectomy L34	Dural tear L4L5 6 mm. and repair with Tecoseal
4/9/2024	58	Female	Osteoporosis	Spinal stenosis with low-grade spondylolisthesis	UBE decompression with KLIF L5S1	None



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4/9/2024	62	Male	Previous lumbar surgery	Adjusted disease L5S1 Right radiculopathy	Full-endoscopic decompression L5S1 left (Interlaminar)	None
4/9/2024	71	Female	Chronic lower back pain	Spinal stenosis L45	UBE decompression L45 with contralateral site approach	None
11/9/2024	65	Male	Spondylosis	Spinal stenosis with low-grade spondylolisthesis L4L5	UBE decompression with KLIF L4L5	None
11/9/2024	59	Male	Cervical spine surgery history	Cervical spondylosis myelopathy C67 C7T1	UBE decompression C67 C7T1	None
30/10/2024	63	Female	Sciatica history	Adjusted disease L5S1 Right radiculopathy	Full-endoscopic decompression L5S1 left (Interlaminar)	None
6/11/2024	68	Male	Previous spondylolisthesis surgery	Spinal stenosis with spondylolisthesis Gr.II+	UBE decompression with KLIF L5S1	None
6/11/2024	70	Male	History of lumbar decompression	Spinal stenosis L45	UBE decompression L45 with contralateral site approach	None
6/11/2024	67	Female	Osteoarthritis	Spinal stenosis L45	UBE decompression L45 with contralateral site approach	None



6/11/2024	73	Female	Chronic back pain, Spondylosis	Spinal stenosis L45	UBE decompression L45 with contralateral site approach	None
6/11/2024	60	Male	Degenerative disc disease	Spinal stenosis with low-grade spondylolisthesis L5S1	UBE decompression and Endo- TLIF	None
6/11/2024	64	Female	Previous cervical surgery	Thoracic OYL with myelopathy	UBE decompression with butterfly technique	None
8/10/2024	58	Female	Lumbar scoliosis	Recurrent syndrome of spinal stenosis L5S1 S/P UBE decompression L4L5	OLIF L5S1 with percutaneous screw fixation L5S1	None
5/11/2024	69	Male	Degenerative joint disease	ASD syndrome S/P PLF L3-L5	XLIF L2L3 with revision rods and pedicle screw fixation L2-L5	None
15/11/2024	72	Male	Diabetes, Previous lumbar surgery	Degenerative lumbar spinal stenosis L4L5	UBE decompression L4L5	None
20/11/2024	61	Female	History of herniated disc surgery	Spinal stenosis with low migration disc L34, L45	UBE decompression L34, L45	None
27/11/2024	68	Male	Osteoporosis, Hypertension	Spinal stenosis L23, L34, L45	UBE decompression L23, L34, L45	None
27/11/2024	55	Female	No significant medical history	Degenerative lumbar spinal stenosis L4L5	UBE decompression L4L5	None



27/11/2024	66	Male	Previous spinal fusion	Spondylolisthesis Gr.II with radiculopathy	UBE decompression and Endo-TLIF L5S1	OLIF peek cage
27/11/2024	67	Female	Osteoarthritis	Spinal stenosis L45	UBE decompression L45 with contralateral site approach	None
27/11/2024	73	Female	Chronic back pain, Spondylosis	Spinal stenosis L45	UBE decompression L45	None

My Essay on Endoscopic Spine Surgery:

Biportal Endoscopic Spine Surgery (BESS) is a minimally invasive surgical technique that has revolutionised the treatment of various spinal pathologies, including lumbar disc herniation, spinal stenosis, and degenerative disc disease. Utilising two small incisions, BESS allows the insertion of specialised endoscopic instruments and a high-definition camera for enhanced visualisation and precision. This approach minimises tissue damage, reduces intraoperative blood loss, and leads to shorter hospital stays and faster recovery times compared to traditional open surgeries. Patients typically experience less postoperative pain and quicker mobilization, with many being discharged within a day of the procedure. Despite its significant benefits, BESS comes with challenges such as a steep learning curve, requiring specialized training for surgeons and limited suitability for patients with complex spinal deformities. However, the future of BESS looks promising, with emerging technologies like robotic assistance and augmented reality expected to further refine its effectiveness. Continued research into long-



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term outcomes will be vital to ensure that BESS maintains its role as a cornerstone of minimally invasive spinal surgery, enhancing patient care and overall satisfaction.

Summary:

The APSS-Medtronic Spine Fellowship 2024 provided an invaluable opportunity for spine surgeons to gain advanced exposure and hands-on experience in spinal surgery under the mentorship of leading experts. This fellowship emphasized the latest minimally invasive techniques, complex spinal deformity management, and the integration of cutting-edge technologies in surgical practice. Fellows benefited from immersive training, including observing surgeries, participating in academic discussions, and engaging in collaborative research. The program aimed to refine their surgical skills, broaden their clinical perspectives, and foster global collaborations within the spine surgery community. Throughout the fellowship, participants gained deep insights into innovative procedures such as biportal endoscopic spine surgery and robotic-assisted techniques, redefining patient care standards. The exposure to Medtronic's advanced spinal technology and interaction with the APSS network of skilled surgeons enriched the fellows' expertise. This transformative experience equipped them with enhanced proficiency, practical knowledge, and a network of peers and mentors to support their continued growth and leadership in the field of spinal surgery.

Reference:

The APSS Medtronic Fellowship 2024 is a program organized by the Asia Pacific Spine Society (APSS) in collaboration with Medtronic. This fellowship offers spine surgeons the opportunity to gain advanced training and experience in spinal surgery at leading centers of



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excellence across the Asia-Pacific region. The program aims to enhance surgical skills, broaden clinical perspectives, and foster global collaborations within the spine surgery community. For more detailed information, please visit the official APSS website (<https://apssonline.org/apss-medtronic-fellowship-2024.php>).

Figure 1: The APSS-Medtronic Fellowship 2024

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APSS is proud to announce the recipients for the fellowship programme for the year 2024 batch

Fellow Name	Centre Name	Host
DR GURUDIP DAS INDIA	Seoul St. Mary's Hospital, The Catholic University of Korea, KOREA	DR YOUNG-HOON KIM
DR VIJAY KUMAR LOYA INDIA	University of Hong Kong HONG KONG	DR KENNY KWAN
DR MASAYOSHI IWAMAE JAPAN	University Malaya Medical Centre, MALAYSIA	DR MUN KEONG KWAN
DR SHENG-CHIEH TSENG TAIWAN	New South Wales Spine Specialist Hospital AUSTRALIA	DR BRIAN HSU
DR WONGTHAWAT LIAWRUNG RUEANG THAILAND	Chungnam National University College of Medicine KOREA	DR HO-JIN LEE

FELLOWSHIP SLOT REPLACEMENT

Important note: Two slot vacancies from previous batches commencing their fellowship in 2024

Batch	Fellow Name	Centre Name	Host
2018	DR CHIA YU LIN TAIWAN	Hamamatsu University School of Medicine JAPAN	DR YUKIHIRO MATSUYAMA
2023	DR ZIKRINA ABYANTO INDONESIA	Wakayama Medical University JAPAN	DR HASHIZUME HIROSHI & DR KEIJI NAGATA



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Figure 2: Minimal invasive spinal surgery in Chungnam National University Hospital



Figure 3: Certification for Complete APSS fellowship program

