

APSS-Medtronic Spine Fellowship 2022

Fellow

Dr Kah Ho Kelvin Lor

MBBS, MRCS (Edinburgh), MMed (Orthopaedic Surgery), FRCS Orthopaedic Surgery (Edinburgh)

Consultant, Department of Orthopaedic Surgery, Khoo Teck Puat Hospital, Singapore

Host

Prof Chong-Suh Lee

M.D., PhD.

President of Medical Affairs

Haeundae Bummin Hospital, Busan, South Korea

Fellowship Centre

Haeundae Bummin Hospital

Busan, South Korea

Duration of Fellowship

17 October 2022 – 15 January 2023

Introduction

The APSS-Medtronic Spine Fellowship was an invaluable experience for me to experience the practice of spine surgery in an entirely different context and healthcare system from what I am familiar with in Singapore. I was extremely honoured to be given the chance to join Professor Lee Chong-Suh for 3 months, and I was eager to learn from his vast experience not only in spinal and deformity surgery, but also as a senior clinician of over 30 years. I had first heard Professor Lee lecture in person during a Scoliosis Research Society Current Concepts course back in 2019, and I was excited to be given the chance to meet him and learn from him.

My fellowship was delayed for over a year due to the COVID-19 pandemic, but thankfully with the lifting of travel restrictions into South Korea, I was able to proceed with the fellowship in 2022. Many thanks to Ms Maxime Lemaire, Ms Kaelyn Liew and Ms Jennifer Matthew from the APSS Secretariat for seamlessly coordinating the commencement of the fellowship.

Fellowship Experience

The Host Centre for my fellowship was Haeundae BumIn Hospital in Busan, South Korea. Haeundae BumIn Hospital is a specialized Orthopaedic private hospital dedicated to treating patients with musculoskeletal conditions, with Spine Surgery being one of its major subspecialties. Professor Lee had recently retired from Samsung Medical Center in Seoul, which itself is one of the largest tertiary referral hospitals in South Korea, and had moved to Haeundae BumIn Hospital to bolster its capabilities in spinal deformity correction surgeries. While Professor Lee's main interest is in thoracolumbar deformity, I also had the pleasure of meeting his colleagues in Haeundae BumIn Hospital, Dr Cho Jae Young, Dr Kim Do Geun and Dr Jung Dong Wook, who had special interest in spinal endoscopy and minimally invasive spinal fusion techniques.



An overview of my fellowship programme is displayed below.

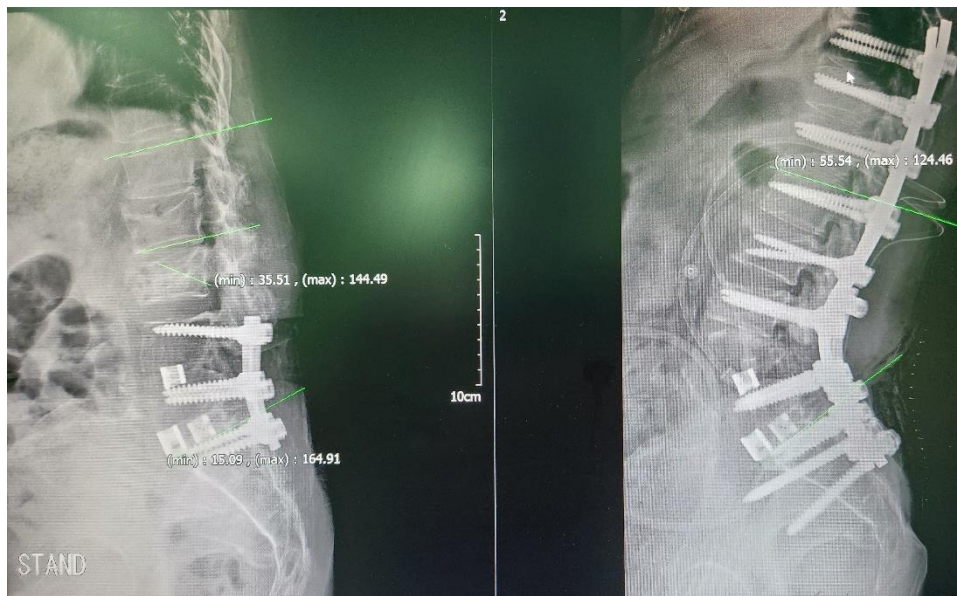
Educational Programme

Weekly programme					
	Monday	Tuesday	Wednesday	Thursday	Friday
7:40 AM ~ 8:10 AM	Spine Conference	Topic Discussion	Topic Discussion	Orthopedic Conference	Spine Conference
8:10 AM ~ 8:40 AM	Ward rounding	Ward rounding	Ward rounding	Ward rounding	Ward rounding
8:40 AM~	Operating Theater Dr. Lee Dr. Kim	Operating Theater Dr. Cho Dr. Jung	Operating Theater Dr. Lee Dr. Kim	Operating Theater Dr. Cho Dr. Jung	Operating Theater Dr. Jung Dr. Kim
16:00 PM					Lecture or Discussion with Dr. Lee

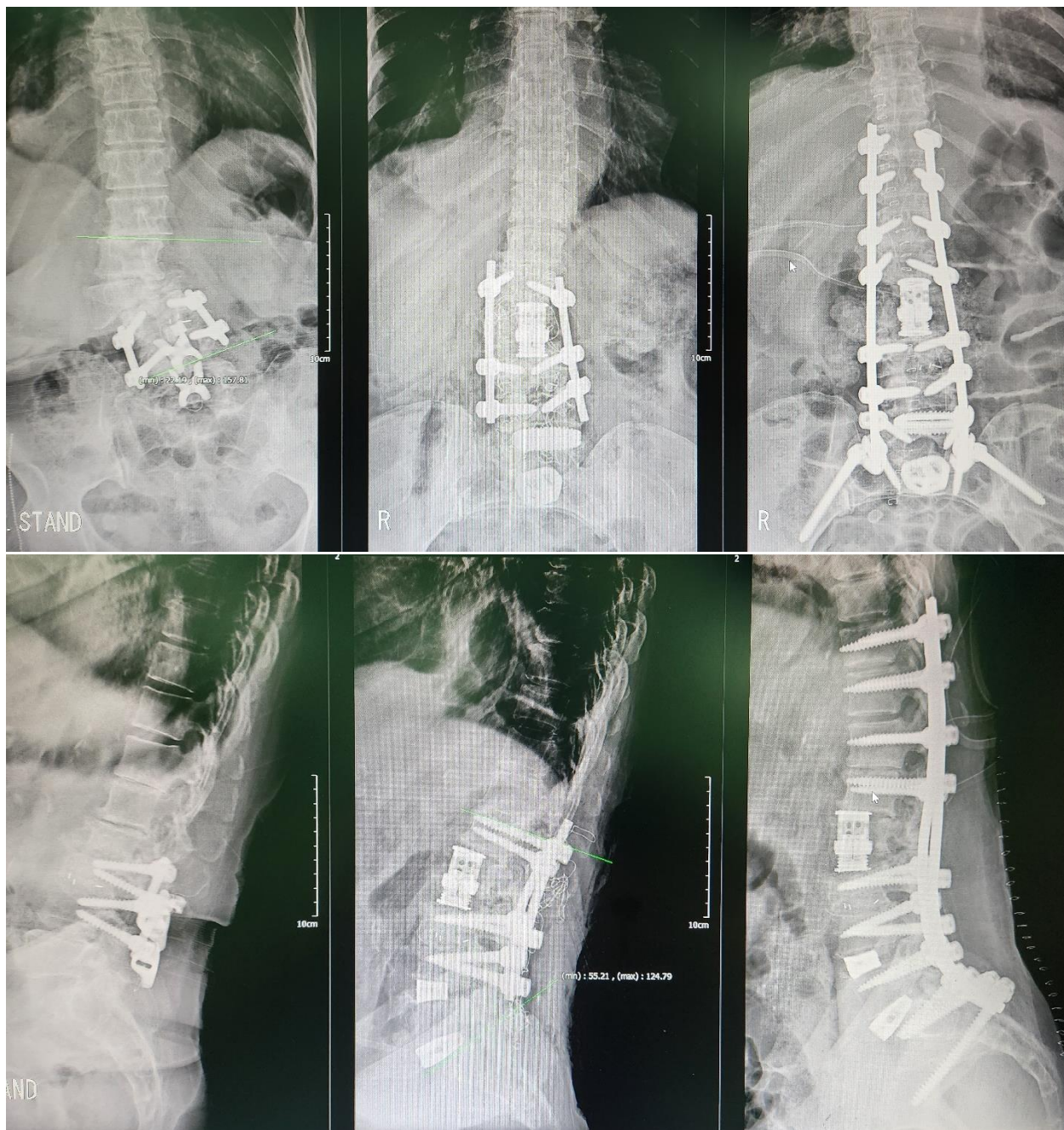
Main Interest	Dr. Lee	Deformity, Degenerative Lumbar Disease Anterior & Posterior Fusion Surgery
	Dr. Cho	Endoscopic Decompression (Lumbar) Endoscopic Fusion
	Dr. Kim	Endoscopic Decompression (Lumbar, Cervical & Thoracic) Endoscopic Fusion
	Dr. Jung	Endoscopic Decompression (Lumbar) Spine Fracture

Monthly Events	NOV. 18-19	Korean Society of Spine Surgery (KSSS) (Fall congress)
	NOV. 26	Deformity Society Meeting

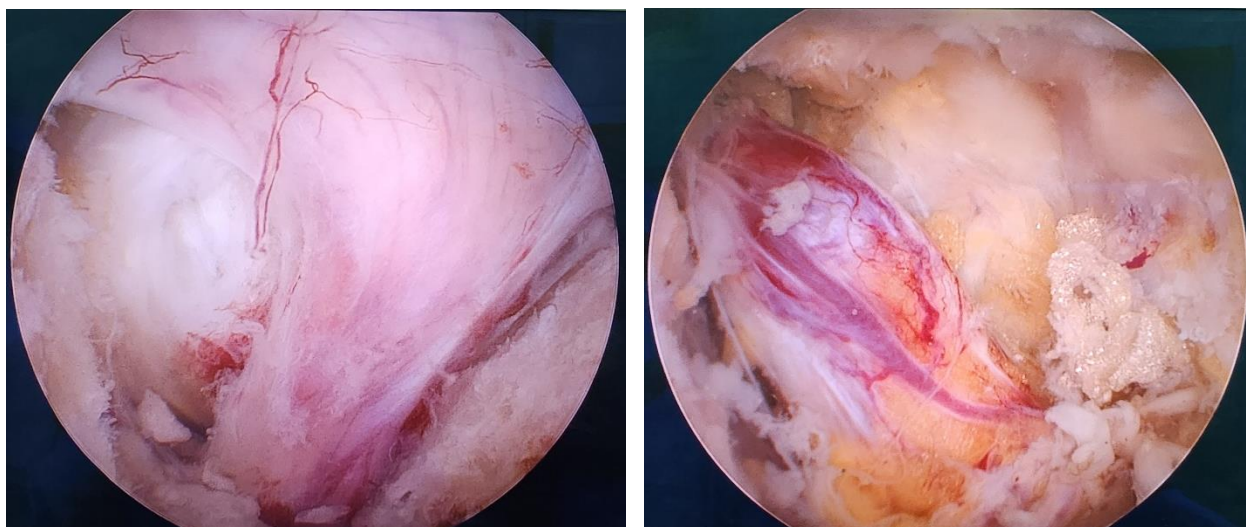
I was given the opportunity to join surgeries daily with Professor Lee and his three colleagues. I had the pleasure of observing and assisting a wide array of spine surgeries, ranging from endoscopic decompressions, minimally invasive OLIF and ALIF surgeries, hybrid surgeries incorporating both limited lumbar fusions and endoscopic decompressions in the setting of multi-level degenerative disease, to long thoracolumbar fusions, paediatric scoliosis correction and adult deformity correction techniques such as pedicle subtraction osteotomy and corner osteotomy. The surgeons I observed were highly skilled and technically proficient, and surgeries were beautifully executed.



Corner osteotomy
for correction of
severe lumbar
flatback deformity



L4-S1 OLIF + L2 lateral corpectomy for correction of lumbar degenerative scoliosis



Excellent visualization of cervical and lumbar exiting nerve roots using the endoscope

In addition, being a private hospital with only senior specialists and no junior doctors (e.g. Residents or local fellows), I found the hospital to be extremely efficient despite its lean manpower. Many of the duties of junior doctors were handled expertly by very experienced nursing staff, including Surgical and Anaesthetic Assistants (in the operating theaters) and Physician Assistants (in the wards). I was amazed by the efficiency of the operating theaters, with a large number of operations being done in a single operating list with minimal downtime for patient turnover.



Typical endoscopic set-up prior to the main surgeon's arrival to facilitate quick turn-over

Aside from surgeries, I also joined in the regular pre- and post-operative case reviews and journal club conducted by the Spine Department every Monday, Tuesday and Friday morning. From these meetings, I was able to pick up many clinical practice pearls and I learnt more about my mentors' surgical

considerations and decision-making process. I also got to learn a little about some of the unique features of the Korean healthcare system and Korean patients in general, both of which undoubtedly play a part in clinical decision making.

During my time with him, Professor Lee was kind enough to invite me to participate in several national spine conferences, including the Korean Cervical Spine Research Society (KCSRS) Annual Meeting, the Korean Society for the Advancement of Spine Surgery (KOSASS) Annual Meeting and the Fall Congress of the Korean Society of Spine Surgery (KSSS). These gave me the opportunity to hear from and interact with many esteemed Korean spine surgeons and learn about the latest advancements in spine surgery.



Yet perhaps what left the deepest impression on me was my mentor himself, Professor Lee. Despite clearly being a very prominent figure in Korean spine circles, being past-President of the KSSS and ex-Editor-in-Chief of the Asian Spine Journal, among many other illustrious accolades, Professor Lee nevertheless was always patient and approachable in answering my many questions. I thoroughly enjoyed listening to his insights about the Korean healthcare system, life and society in Korea, as well as his personal journey and development as a spine surgeon. I was impressed by how meticulous he was in surgery despite having to perform all his surgeries nearly single-handedly, and the outcomes of his patients post-operatively were a testament to the care he demonstrated during surgery. I would like to sincerely express my deepest gratitude to Professor Lee for the kind hospitality and generosity he extended to myself and my family, and for making my fellowship a truly enriching and unforgettable experience.

Case Log

No	Date	Age/Sex	Diagnosis	Surgery	Surgeon	Role
1	17/10/22	61/M	L4-5 degerative spondylolisthesis	L4-5 OLIF + percutaneous pedicle screw fixation (PPF)	Prof Lee CS	Assistant
2	17/10/22	64/M	L4-5 spinal stenosis	L4-5 unilateral laminotomy for bilateral decompression (ULBD)	Prof Lee CS	Assistant
3	18/10/22	82/F	L3-4 PID with spinal stenosis	L3-4 unilateral biportal endoscopic (UBE) decompression	Dr Cho JY	Observer
4	18/10/22	51/M	L5-S1 PID	L5-S1 UBE microdisectomy	Dr Jung DW	Observer
5	19/10/22	74/M	S/p L3-5 posterolateral fusion with adjacent level disease and degenerative lumbar scoliosis	1 st stage L5-S1 ALIF + L1-3 OLIF	Prof Lee CS	Assistant
6	19/10/22	77/F	L5-S1 DDD with foraminal stenosis	L5-S1 ALIF + PPF	Prof Lee CS	Assistant
7	20/10/22	84/F	L4-5 foraminal stenosis	L4-5 UBE foraminotomy	Dr Cho JY	Observer
8	20/10/22	65/F	S/p L4-5 PLIF, L5-S1 ALIF with adjacent level disease	L3-4 OLIF + PPF	Dr Cho JY	Observer
9	24/10/22	74/M	S/p L3-5 posterolateral fusion with adjacent level disease/ degenerative lumbar scoliosis	2 nd stage T6-pelvis fusion and decompression	Prof Lee CS	Assistant
10	25/10/22	77/F	S/p L3-4 TLIF with adjacent level disease	1. L5-S1 ALIF + PPF 2. L L3-4 UBE foraminotomy	Dr Cho JY	Observer
11	25/10/22	81/F	L3 osteoporotic vertebral compression fracture (VCF)	L3 vertebroplasty	Dr Cho JY	Observer
12	25/10/22	77/M	L3-4 spinal stenosis	L3-4 UBE decompression	Dr Cho JY	Observer
13	25/10/22	69/F	L4-5 spinal stenosis	L4-5 UBE decompression	Dr Cho JY	Observer
14	25/10/22	21/M	L5-S1 PID	L5-S1 UBE microdisectomy	Dr Cho JY	Observer

15	25/10/22	52/F	L4-5 spinal stenosis	L4-5 UBE decompression	Dr Cho JY	Observer
16	26/10/22	77/F	S/p T10-S1 fusion with PJK	T4-T10 extension of fusion	Prof Lee CS	Assistant
17	26/10/22	74/M	L4-5 degenerative spondylolisthesis	L4-5 TLIF	Prof Lee CS	Assistant
18	26/10/22	36/F	C6-7 PID with myelopathy	C6-7 ACDF	Prof Lee CS	Assistant
19	27/10/22	63/F	L4-5 spinal stenosis	L4-5 UBE decompression	Dr Cho JY	Observer
20	27/10/22	58/F	C6-7 foraminal stenosis	C6-7 UBE foraminotomy	Dr Cho JY	Observer
21	28/10/22	87/F	L1 osteoporotic VCF	L1 vertebroplasty	Dr Kim DG	Observer
22	28/10/22	79/F	L4 osteoporotic VCF	L4 vertebroplasty	Dr Kim DG	Observer
23	31/10/22	78/F	S/p L4-S1 TLIF with post-op seroma	L4-S1 exploration and drainage of seroma	Prof Lee CS	Assistant
24	31/10/22	56/M	OPLL/OYL with cervical myelopathy	C3-7 laminoplasty	Prof Lee CS	Assistant
25	01/11/22	81/M	OYL with thoracic myelopathy	T10-12 UBE laminectomy	Dr Cho JY	Observer
26	02/11/22	65/F	Old L1 VCF with kyphosis	L1 PSO + T10-L3 fusion	Prof Lee CS	Assistant
27	02/11/22	65/M	L3-4 spondylodiscitis	L3-4 OLIF with iliac crest bone graft + PPF	Prof Lee CS	Assistant
28	03/11/22	65/M	L4-5 foraminal PID	L4-5 UBE foraminotomy and microdiscectomy	Dr Cho JY	Observer
29	03/11/22	18/F	C6-7 foraminal stenosis	C6-7 UBE foraminotomy	Dr Cho JY	Observer
30	03/11/22	56/F	L1-5 degenerative lumbar scoliosis	1. L3-5 OLIF + PPF 2. L1-3 UBE decompression	Dr Cho JY	Observer
31	03/11/22	46/M	L5-S1 PID	L5-S1 UBE microdiscectomy	Dr Cho JY	Observer
32	08/11/22	68/F	L4-5 DDD with severe spinal stenosis	L4-5 OLIF + PPF + UBE decompression	Dr Cho JY	Observer
33	08/11/22	54/M	L3-4 spinal stenosis	L3-4 UBE decompression	Dr Cho JY	Observer
34	08/11/22	62/M	L1-S1 DDD	1. L4-S1 ALIF + PPF 2. L2-4 UBE decompression	Dr Cho JY	Observer
35	09/11/22	66/M	L4-5 isthmic spondylolisthesis and L3-4 DDD	L3-5 OLIF + PPF	Prof Lee CS	Assistant
36	09/11/22	71/F	L4-5 spinal stenosis	L4-5 ULBD	Prof Lee CS	Assistant
37	10/11/22	34/F	L4-5 PID	L4-5 percutaneous endoscopic lumbar discectomy (PELD)	Dr Choi YS	Observer

38	10/11/22	56/M	C6-7 DDD with radiculopathy	C6-7 ADR	Dr Choi YS	Observer
39	10/11/22	65/F	S/p C3-5 ACDF with adjacent level disease	C5-7 endoscopic laminoforaminotomy	Dr Bae JS	Observer
40	11/11/22	81/F	L4-S1 DDD	L4-S1 ALIF + PPF	Dr Bae YS	Observer
41	11/11/22	63/M	L4-5 PID	L4-5 PELD	Dr Bae JS	Observer
42	11/11/22	64/F	L4-5 PID	L4-5 PELD	Dr Bae JS	Observer
43	11/11/22	73/F	Cervical DDD with axial neck pain	Cervical epidural neurolysis	Dr Bae JS	Observer
44	11/11/22	55/F	L5-S1 foraminal PID	L5-S1 PELD	Dr Bae JS	Observer
45	11/11/22	59/M	L5-S1 DDD	L5-S1 ALIF + PPF	Dr Bae YS	Observer
46	14/11/22	68/F	S/p L3-4 TLIF with adjacent level disease/degenerative lumbar kyphoscoliosis	L2-3 OLIF + L3 asymmetrical PSO + T10-S1 fusion	Prof Lee CS	Assistant
47	15/11/22	83/F	T11 osteoporotic VCF	T11 vertebroplasty	Dr Cho JY	Observer
48	15/11/22	77/F	S/p L5-S1 ALIF with persistent radiculopathy	L5-S1 UBE decompression	Dr Cho JY	Observer
49	15/11/22	76/F	T10-12 OYL	T10-12 UBE laminectomy	Dr Cho JY	Observer
50	15/11/22	28/F	L4-5 spinal stenosis and PID	L4-5 UBE decompression and microdiscectomy	Dr Jung DW	Observer
51	16/11/22	41/F	L4-5 degenerative spondylolisthesis	L4-5 TLIF	Prof Lee CS	Assistant
52	16/11/22	46/M	L5-S1 PID	L5-S1 microdiscectomy	Prof Lee CS	Assistant
53	16/11/22	38/M	L5-S1 PID	L5-S1 microdiscectomy	Prof Lee CS	Assistant
54	21/11/22	35/M	L4-5 PID	L4-5 microdiscectomy	Prof Lee CS	Assistant
55	22/11/22	86/F	1. L4-5 spinal stenosis 2. L1 Kummel's disease	1. L4-5 UBE decompression 2. L1 vertebroplasty	Dr Cho JY	Observer
56	22/11/22	91/F	L3 osteoporotic VCF	L3 vertebroplasty	Dr Cho JY	Observer
57	22/11/22	73/F	L5-S1 isthmic spondylolisthesis	L5-S1 ALIF + PPF	Dr Cho JY	Assistant
58	22/11/22	71/M	AS (T12-L2 autofusion) with spinal stenosis	L2-3 OLIF + T12-L5 fusion	Dr Cho JY	Observer
59	23/11/22	68/M	L3-S1 DDD with degenerative spondylolisthesis	L4-S1 TLIF + L3-4 Coflex insertion	Prof Lee CS	Assistant
60	29/11/22	69/F	L3-S1 DDD	1. L4-S1 ALIF + PPF 2. L3-4 UBE decompression	Dr Cho JY	Assistant

61	29/11/22	52/F	L5-S1 PID	L5-S1 UBE microdiscectomy	Dr Cho JY	Observer
62	29/11/22	73/M	L4-5 spinal stenosis	L4-5 UBE decompression	Dr Jung DW	Observer
63	30/11/22	65/M	L4-5 spinal stenosis	L4-5 ULBD	Prof Lee CS	Assistant
64	07/12/22	72/F	L4-5 degenerative spondylolisthesis	L4-5 OLIF + PPF	Prof Lee CS	Assistant
65	07/12/22	68/F	T12 osteoporotic burst fracture	T12 lateral corpectomy + T10-L2 PPF	Dr Kim DG Prof Lee CS	Assistant
66	07/12/22	68/M	T11-12 PID with myelopathy	T11-12 PLIF	Prof Lee CS	Observer
67	19/12/22	72/F	S/p L3-4 TLIF with degenerative lumbar kyphoscoliosis	L4-S1 OLIF + L2 lateral corpectomy + T10-pelvis fusion	Prof Lee CS	Assistant
68	21/12/22	13/F	Adolescent idiopathic scoliosis (AIS)	T4-12 deformity correction and fusion	Prof Lee CS	Assistant
69	26/12/22	74/F	S/p L4-S1 TLIF with degenerative lumbar kyphoscoliosis	L4 corner osteotomy + T10-pelvis fusion	Prof Lee CS	Assistant
70	28/12/22	14/F	AIS	T4-L1 deformity correction and fusion	Prof Lee CS	Assistant
71	28/12/22	22/M	L4-5 PID	L4-5 microdiscectomy	Prof Lee CS	Assistant
72	04/01/23	70/F	L2-5 spinal stenosis	L2-5 UBE decompression	Dr Kim DG	Assistant
73	04/01/23	54/M	L4-5 PID	L4-5 UBE microdiscectomy	Dr Kim DG	Observer
74	06/01/23	14/M	Syndromic scoliosis (Prader-Willi syndrome)	T3-L3 deformity correction and fusion	Prof Park SJ	Observer
75	06/01/23	67/F	L4-5 spinal stenosis	L4-5 hemilaminotomy	Prof Park SJ	Observer
76	09/01/23	69/F	L3-S1 DDD with foraminal stenosis	L3-S1 OLIF + posterior decompression and fusion	Prof Park JS	Assistant
77	09/01/23	68/F	L3-5 spinal stenosis	L3-5 ULBD	Prof Park JS	Observer
78	11/01/23	14/F	S/p T3-L4 scoliosis correction	L3-4 rod cutting	Prof Park SJ	Assistant
79	11/01/23	53/F	C3-6 DDD with myeloradiculopathy	C3-6 laminoplasty + C5-6 foraminotomy	Prof Park SJ	Assistant
80	11/01/23	16/F	AIS	T4-L1 deformity correction and fusion	Prof Park SJ	Assistant