

APSS MEDTRONIC FELLOWSHIP 2019

Duration:

January 16, 2020 – May 27, 2020

Fellow:

Rommel Lim Tan, M.D., Diplomate Philippine Board of Orthopaedics, Fellow Philippine Orthopaedic Association, Fellow Philippine College of Surgeons.

Graduated Spine Fellowship Training from University Malaya Medical Centre

Spine Consultant – Davao Spine and Scoliosis Center, Southern Philippines Integrated Neurosurgery Training Program, Davao Doctors Hospital, Davao City, Philippines

Host Spine Center of Excellence:

Ganga Medical Centre and Hospitals, Pvt. Ltd.

Host Spine Surgeon/ Mentor:

Prof. Dr. S. Rajasekaran, M.S., DNB, F.R.C.S.(Ed), M.Ch. (Liv), F.A.C.S, F.R.C.S.(Eng), Ph.D. Chairman of the Department of Orthopaedics, Trauma & Spine Surgery, Ganga Hospital, Coimbatore.

Chair, AO Spine International Board

President Elect, Asia Pacific Spine Society

Previous:

- Chair of AOSpine International Research Commission
- President of SICOT
- President- CSRS-AP
- President of the Indian Orthopaedic Association
- President of the Association of Spine Surgeons of India
- President of International Society for the Study of Lumbar Spine, Canada
- President of the World Orthopaedic Concern
- Chief National Delegate of Asia Pacific Orthopaedic Association.

Academic Distinctions:

- Hunterian Professor for the year 2011-12 by the Royal College of Surgeons of England;
- ‘Distinguished Visitor’ to Harvard Medical International, Boston, USA
- Grand Rounds Lecturer of Dartmouth University, USA and Mayo Hospital, USA
- Adjunct Professor of Orthopaedic Surgery, Tamil Nadu Dr MGR Medical University
- Deputy Editor of the Journal of Bone & Joint Surgery; Journal of SPINE, USA; Global Spine Journal, USA
- Editorial board of European Spine Journal

Introduction

Asia Pacific Spine Society is a premiere organization made up of spine surgeons practicing in the Asia Pacific region. APSS in collaboration with Medtronics awards a fellowship to a chosen APSS member. This program develops the spine fellow by providing an excellent clinical and surgical exposure. The successful candidate will have the honor to spend 3 months in a spine center of excellence in the region. He will have the rare opportunity to train under the internationally renowned spine surgeons and learn from them. I am grateful to be chosen as an APSS-Medtronic Spine fellow and had the great opportunity to train at Ganga Hospital in Coimbatore, India under the tutelage of Professor Dr. S. Rajasekaran.

Ganga Hospital is a 560 beds Orthopaedics, Spine and Plastic surgery Center with 20 operating theatres, a regional blood bank, a bone and tissue bank and a modern, state of the art equipments and facilities. The center also has its own Spine & Rehabilitation Centre, and a research centre. The centre has a robust training programme for different orthopaedic subspecialties (Spine, Arthroplasty, Arthroscopy & Sports, Pediatrics and Trauma), Plastic surgery division (Hand, microsurgery, reconstructive and burns) and Anaesthesia. Each section is composed of well-published and multi-awarded expert consultants, registrars, and fellows. Their consultants are also leaders in their respective field and have written chapters and/ or became editors of several books and publications. The centre has won several best hospital awards and made tremendous progress based on the Ganga Hospital four pillars (Clinical work, academics, researches and social work), making it as one of the premiere orthopaedic centre of the world. As of this writing, it continuous to go into transition in terms of growth and expansion.

My fellowship was originally scheduled from 02 January 2020 to 31 March 2020. It was arranged and coordinated by the Asia Pacific Spine Society. Unfortunately, there were some issues with the accredited local agency. Hence, it was moved to 16 January – 05 April 2020. APSS, Professor Rajasekaran and the staffs of Ganga Hospital also assisted me by providing the necessary paper works for the visa processing and arranging a comfortable place for me to stay while undergoing the fellowship. The APSS thru the secretariat (Ms. Jenny Wong and Mr. Maxime Lemaire) was constantly communicating with me enquiring if there are any issues with regards to the visa application. They also provided me with the plane tickets with return flights from Davao City, Philippines to Coimbatore, India. For these, I express my heartfelt gratitude to the APSS and Ganga Hospital for making my journey a pleasant one and for giving me this once in a lifetime opportunity to learn from the masters of spine surgery up close and personal.

Fellowship Experience

My journey started on January 15, 2020. I left Davao City on board Silk Air bound for Cebu City then Singapore. I then took indigo airlines from Singapore to Coimbatore. There was no direct flight from the Philippines to India. The whole time during my travel, I was constantly in touch and was assisted by Mr. Lemaire of the APSS secretariat and Mr. Mohan of the Ganga Hospital. When I reached Coimbatore, I was welcomed by one of the staff from the hospital and

was taken to Ananya's nest hotel. I never encountered any problems during my travel. The flight was also smooth and hassle-free. The next day, as Professor Rajasekaran was on leave, I reported to Dr. Ajoy Shetty and awaited instruction. The first question was... "What did you come here to learn?" which to be honest, I was not prepared to answer. The thoughts that came to my mind at that time, and to which I relayed to the good doctor (like a student answering a teacher's question) are... "I came to learn anterior approaches of the spine specially on the cervical, techniques in doing kyphosis/ kyphoscoliosis and spine endoscopy." I was then sent to the outpatient clinic to observe and get myself familiarized with. There, I got to meet one of the spine registrars, Dr. Vibhu and other spine fellows doing two years subspecialty training. The outpatient clinic was very busy, yet everyone was so kind to orient me as to how things work in the clinics. Moreover, in between patients, there were some discussions about the cases seen. When I went into the theatre, I was able to meet other fellows from AO Spine doing short term fellowships. On my second day, I met Dr. Rishi and was able to attend his comprehensive lecture on spine metastasis during the radiology conference.

I got to see Professor Rajasekaran on my 5th day in the hospital. It was a very busy day with a long OT list. We observed his procedures on degenerative scoliosis under navigation and the neuromuscular scoliosis with T1 to L3 fusion. Even with the busy OT list, he still finds time to discuss the cases. In all honesty, the moment with the good professor left me silently in awe. I could not believe how lucky I am to be with THE Professor Rajasekaran, a well-known author of many publications and one of the well-respected authority in spine surgery. The following day, we got to see not just spine cases but (occasionally), some trauma and some arthroplasty cases, as well in the outpatient clinic. In between patients, he never fails to discuss some of the cases further. I rotated with him for 2 weeks on January. On February, I worked with Dr Rishi Kanna and in March, with Dr Ajoy Shetty. Everyday is a day to look forward to with new things to be learned. As what my previous training has instilled in me, I made it a habit to keenly observe the procedures with particular attention up to tiniest details, listen sharply to the discussions during classes and take down notes so I won't miss the important things that may be of use when I go back home. I was also occasionally given a chance to assist in some procedures specially when there are anterior cervical cases. Sometimes, with a lot of interesting cases going on simultaneously, it is difficult to choose which case to go into.

During my rotation with Dr. Rishi, I get to learn Odontoid screw fixation, C1C2 screw fixation, transforaminal and interlaminar endoscopic discectomy. I also get to observe his technique on en bloc flavectomy. I get to learn from Dr. Ajoy his technique on TLIF with Wiltse approach, MIS TLIF and his techniques in growing rods, AIS and cervical corpectomy. With Professor Rajasekaran, I learned ACDF, microdiscectomy, T2 corpectomy for aggressive vertebral hemangioma and techniques in severe kyphosis correction. I also get to see how intradural tumours, foramen magnum decompression, cervical pedicle screws under navigation are done.

Tuesday morning are scheduled for class or journal club, Thursday evenings for ground rounds and Saturday mornings for general clinics. During these times, I write down on my notes

all the things which are somehow new to me and try to do some additional readings in the evening to be able to catch up.

I am also thankful to Prof S. Rajasekaran and Dr Dilip for making the necessary arrangements with the organizing committee in APSS BSS operative course. Because of them, I was able to attend the course in Mumbai. After the operative course, we were also able to participate in the Ganga Spine Microsurgery course. This course was broken down with morning sessions in the theatre with microdiscectomy by Prof Rajasekaran and afternoon wetlab sessions with Dr. Vijay.

During the lockdown due to the worldwide COVID-19 pandemic, all the hotels closed. Ananya's nest, the hotel where I stayed was very considerate and continued to accommodate me until I could find a place to transfer. I appreciate the kindness of Prof Rajasekaran for providing me with a very comfortable accommodation in the Ganga Guesthouse during the difficult times. I also thank Dr. Ajoy, Dr. Balavenkat and Dr. Dilip for facilitating my transfer. The place is very nice and conducive for studying. The room is huge and very clean. There is also a long study table on the side, which was perfect for reading and watching webinars. Healthy meals are provided, breakfast, lunch and dinner. Every now and then, I still go to the hospital on board the Ganga Hospital bus which goes to the hospital every morning and return to the guesthouse in the evening. On the early phase of the lockdown, the clinics were closed and there were no elective surgery. But there were few emergency trauma cases and some cases with cauda equina that required emergency intervention. So I still get to observe/ assist in some procedures. The situation got interesting that I got 2 things to look forward to. In the morning, I looked forward to seeing some procedures, and in the evening, I looked forward to watching webinars in the comfort of the guesthouse. The lockdown actually had a positive effect on me since it gave me a chance to closely interact with the professor and the good doctors, and attend webinars which provided good avenues for learning. It kept me busy even with the pandemic going on. At the back of my mind, if this is a lockdown, I wouldn't mind it at all. Eventually, the number of spine cases increased and classes in the hospital resumed following social distancing protocol.

All this time, the Philippine embassy was also in touch with me, monitoring my situation and assisting in the process for visa extensions (Thanks to Ambassador Ramon Bagatsing Jr and his team). My teachers in the University of Malaya Medical Centre (Professor Kwan, Prof Chris, Prof Chiu, Dr. Chung) all kept in touch. So did my family and friends in the Philippines. The APSS secretariat also kept in touch (Thanks to Ms Jenny Wong and Mr Maxime Lemaire) and I thank them for the assistance they extended. With all these things happening, it made me realize that APSS is one big family and further strengthened the essence of the word "fellowship", which involves expanding one's horizon, seeing new ways, learning new things, experiencing new foreign culture, creating lasting friendships, making new connections and more importantly, having fun while doing all these.

However, all good things must come to an end. The government of India arranged repatriation flights for their returning citizens. We were able to secure a seat for the rescue flights

from Coimbatore to Delhi, then Delhi to Manila. The flights went smoothly and comfortably as planned. I was quarantined in Manila before returning to Davao. Then another quarantine when I reached Davao.

Overall, the fellowship has a huge impact in my clinical practice and is a very rewarding learning experience. I thank the APSS and Medtronics for the opportunity and Professor Dr. S. Rajasekaran for accepting me as an APSS fellow in his prestigious institution. To the people who are also part of this journey, the Ganga Hospital Team (Dr. Ajoy Shetty, Dr. Rishi Kanna, Dr. Dilip, Dr. Vijay, Dr. Vibhu, Dr. Balavenkat and Mr. Mohan), my teachers (Prof. Kwan MK, Prof. Chris CYW, Prof. Chiu CK, Dr. Chung WH, Dr. Ronald Tangente), APSS secretariat (Ms Jenny Wong and Mr Maxime Lemaire), my family and friends, my heartfelt gratitude.



Photo with Ganga and AO fellows in between cases



Visit at Ganga Spine Rehab Unit



Photo with Professor S. Rajasekaran



Feels great to meet my Philippine colleagues and my esteemed mentors at APSS + BSS Mumbai Operative Course



Ganga Spine Microsurgery course



Dr Ajoy P. Shetty gave me a book on Spinal Tuberculosis



Photo with the entire Ganga Spine Team - (left to right) Dr Sridhar, Dr Dilip, Dr Vibhu, Dr Amit, Dr Vijay, Dr Swapnil, Me, Prof S. Rajasekaran, Dr Rishi Kanna, Dr Ajoy Shetty, Dr Rohit, Dr Karthik, Dr Chandran

SCHEDULE

January 16-31, 2020 and April 2020/ Prof. S. Rajasekaran

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7:00-8:00 am	Operation Theatre	Spine Seminar/ Journal Club	Operation Theatre	Outpatient Consult	Operation Theatre	General Orthopaedics Class/ Conference
8:00 am - Onwards		Outpatient Consult				Outpatient Consult
5:00 pm				Grand Rounds		

February 1-29,2020/ Dr. Rishi M. Kanna

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7:00-8:00 am	Operation Theatre	Spine Seminar/ Journal Club	Operation Theatre	Operation Theatre	Outpatient Consult	General Orthopaedics Class/ Conference
8:00 am - Onwards		Operation Theatre				Outpatient Consult
5:00 pm				Grand Rounds		

March 1-31, 2020/ Dr. Ajoy P. Shetty

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7:00-8:00 am	Outpatient Consult	Spine Seminar/ Journal Club	Operation Theatre	Operation Theatre	Operation Theatre	General Orthopaedics Class/ Conference
8:00 am - Onwards		Outpatient Consult				Operation Theatre
5:00 pm				Grand Rounds		

April 1 - 30, 2020/ Prof. Dr. S. Rajasekaran

The schedule is irregular due to the national lockdown (COVID-19). Most of my time was spent on daily webinars (Project Sambhav by Medtronics) and observing/ assisting surgeries. Please refer to logbook for the surgeries observed and assisted.

May 1 - 27, 2020/ Prof. Dr. S. Rajasekaran

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7:00-8:00 am	Operation Theatre	Spine Seminar/ Journal Club	Operation Theatre	Outpatient Consult	Operation Theatre	General Orthopaedics Class/ Conference
8:00 am - Onwards		Outpatient Consult	Operative discussion			
4:00 pm						
5:00 pm		Grand Rounds		Outpatient Consult		

Topics Discussed during lockdown

May 5, 2020 - Hirayama Disease

- Clinical features of syringomyelia
- Thoracic outlet syndrome
- Ulnar paradox
- Post operative urinary retention

May 9, 2020 - General Clinics

- Brown Tumour
- Vit. B12 deficiency and its reaction when patient is given Nitrous Oxide
- Tabes dorsalis

May 13, 2020 - Natural history of lumbar degen

- When to do MRI in AIS

May 16, 2020 - Trauma audit

- External Fixation for multitrauma patient
- Burst wound

May 19, 2020 - High Intensity Zone in Modic changes

- Predictive signs of discogenic back pain

May 23, 2020 - discussion on intertroch femur fractures

February 13 – 15, 2020 – APSS + BSS Mumbai Operative Spine Course

February 19 – 22, 2020 – Ganga Hospital Spine Microsurgery Course

APSS MEDTRONIC GANGA FELLOWSHIP LOGBOOK (January 16 - May 27, 2020)

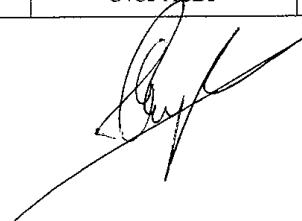
No	Date	Age	Sex	Diagnosis	Procedure	Surgeon	Role
1	18/01/2020	72	M	C6C7 Type C Injury with Traumatic Disc Prolapse with ASIA A Neurology	C6C7 ACDF	Dr. Ajoy P Shetty	Observer
2	18/01/2020	47	M	C6C7 AO Type C Injury with ASIA Neurology	ACDF C6C7 with Lateral Mass Fusion C5-T1	Dr. Ajoy P Shetty	Observer
3	20/01/2020	78	F	Degenerative Lumbar Scoliosis, L4L5 Grade 2 Listhesis, L3-S1 Spinal Canal Stenosis	T12-S1 Decompression and T12 – S2 Iliac Fusion under AIRO Navigation	Prof. S. Rajasekaran	Observer
4	20/01/2020	27	M	Right Thoracic Kyphoscoliosis (Neuromuscular)	T1-L3 Posterior Instrumented Deformity Correction and Fusion under AIRO Navigation	Prof. S. Rajasekaran	Observer
5	20/01/2020	44	F	L4L5 Discogenic Stenosis with Radiculopathy	L4L5 Microdecompression	Dr. Rishi M Kanna	Observer
6	21/01/2020	42	M	Type 2 Odontoid Fracture C5 A1, C6 B2 Injury with Normal Neurology	Odontoid Screw Fixation and C5C6 ACDF	Dr. Rishi M Kanna	Observer
7	21/01/2020	32	M	C6C7 Type C Injury ASIA B Neurology	C6C7 ACDF	Dr. Rishi M Kanna	Observer
8	22/01/2020	54	F	Basilar Invagination with Atlantooccipital Assimilation with Neurodeficit	Foramen Magnum Decompression, C2-C4 Laminectomy, Occipitocervical Fusion under AIRO Navigation	Prof. S. Rajasekaran	Observer
9	22/01/2020	27	M	Right Thoracic Kyphoscoliosis	Stage 2 Osteotomy, Deformity Correction and Fusion	Prof. S. Rajasekaran	Observer
10	22/01/2020	48	F	L4L5 Pseudomeningocele with Neurodeficit S/P Microdiscectomy	Dural Repair	Dr. Ajoy P Shetty	Observer
11	22/01/2020	34	F	L3L4 Disc Extrusion with Radiculopathy	Revision Microdiscectomy L3L4	Dr. Rishi M Kanna	Observer
12	22/01/2020	35	M	L5S1 Disc Extrusion with Radiculopathy	L5S1 Endoscopic Discectomy	Dr. Rishi M Kanna	Observer
13	24/01/2020	51	M	L5S1 Degenerative Spondylolisthesis	L5S1 TLIF	Dr. Ajoy P Shetty	Observer
14	24/01/2020	60	F	C2C3 IDEM with Myelopathy	C2C3 Laminectomy with Tumour Excision	Prof. S. Rajasekaran	Observer
15	27/01/2020	40	F	T12 AO B2, L1 AO A3 Injury	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
16	27/01/2020	60	M	L5S1 Disc Prolapse with Radiculopathy, Left	Microdiscectomy	Dr. Rishi M Kanna	Observer
17	27/01/2020	12	F	Congenital Thoracic Scoliosis S/P Application of Growing	Growth Rod Distraction	Dr. Ajoy P Shetty	Observer



				Rod			
18	29/01/2020	14	F	AIS Lenke 6	PISF T3-L3 under AIRO Navigation	Prof. S. Rajasekaran	Observer
19	29/01/2020	42	M	C5C6 Disc Prolapse with Left Radiculopathy	C5C6 ACDF	Prof. S. Rajasekaran	Assisted
20	29/01/2020	52	M	L2-S1 Spinal Canal Stenosis with Radiculopathy	L2-L4 Decompression and Fusion	Dr. Rishi M Kanna	Observer
21	29/01/2020	72	F	OVCF L3	Vertebroplasty	Prof. S. Rajasekaran	Observer
22	29/01/2020	48	F	L4L5 Spondylolisthesis with Stenosis	L4L5 TLIF	Dr. Ajoy P Shetty	Observer
23	31/01/2020	81	M	L4L5 Facetal Cyst, Left with Radiculopathy	L4L5 Microdecompression	Prof. S. Rajasekaran	Observer
24	31/01/2020	65	M	CSM with C3 C4, C4 C5 Disc Osteophyte Complex Nurick 3	Cervical Laminectomy C3-C6	Prof. S. Rajasekaran	Observer
25	31/01/2020	58	M	L3L4 Stenosis with Radiculopathy	L3 L4 TLIF	Dr. Ajoy P Shetty	Observer
26	31/01/2020	44	M	L4 IDEM with Radiculopathy, Left	Tumour Excision Biopsy	Prof. S. Rajasekaran	Observer
27	03/02/2020	42	F	C6C7 Disc Prolapse with Radiculopathy	C6C7 ACDF	Dr. Rishi M Kanna	Observer
28	03/02/2020	56	M	T10T11 OLF with Myelopathy	T10-T12 Decompression with Instrumentation under AIRO navigation	Prof. S. Rajasekaran	Observer
29	03/02/2020	51	M	L4L5 Disc Prolapse with Radiculopathy	L4L5 Microdiscectomy	Dr. Rishi M Kanna	Observer
30	03/02/2020	46	M	T6 AO A1, T7 AO B3 with ASIA A Neurology	Posterior Instrumented Stabilisation with Decompression	Dr. Rishi M Kanna	Observer
31	04/02/2020	59	M	L4L5 Degenerative Listhesis with Spinal Stenosis	L4L5 TLIF	Dr. Rishi M Kanna	Observer
32	04/02/2020	18	M	L1 B2, L2 A3 Injury with Normal Neurology	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
33	04/02/2020	39	M	C5C6 Facet Dislocation with C6 facet fracture	C5C6 ACDF	Dr. Rishi M Kanna	Observer
34	05/02/2020	32	M	Ankylosing Spondylitis T11 T12 Discovertebral Fracture with Bilateral Hip Ankylosis	T9-L2 Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
35	05/02/2020	36	M	L5S1 Lytic Listhesis with Radiculopathy	L5S1 MIS TLIF	Dr. Ajoy P Shetty	Observer
36	05/02/2020	69	M	C7 Carrot Stick Fracture (AS) with Normal Neurology	C3-T3 Posterior Instrumented Stabilisation	Prof. S. Rajasekaran	Observer
37	06/02/2020	77	M	L2L3, L4L5 Listhesis with Radiculopathy Post L2-L5 Midline Decompression (2001)	L2-L5 Decompression and Fusion	Dr. Rishi M Kanna	Observer



38	06/02/2020	70	M	C5C6 Disc Extrusion with Calcification with Myelopathy	C6 Corpectomy with Anterior Plating	Dr. Rishi M Kanna	Observer
39	06/02/2020	28	F	T12 Aggressive Hemangioma with Neurodeficit	Posterior Decompression with Stabilisation	Dr. Rishi M Kanna	Observer
40	10/02/2020	10	M	Post Op Thoracolumbar Kyphoscoliosis	Revision and Extension of Distal Construct	Prof. S. Rajasekaran	Observer
41	10/02/2020	67	F	L4L5 Degenerative Listhesis with Neurodeficit	L4L5 TLIF	Dr. Rishi M Kanna	Observer
42	10/02/2020	50	M	L2L3 IDEM Schwannoma	L2L3 Laminectomy with Tumour Excision, Biopsy	Prof. S. Rajasekaran	Observer
43	10/02/2020	29	M	T8 Infective Spondylodiscitis	Posterior Decompression with Stabilisation	Dr. Rishi M Kanna	Observer
44	10/02/2020	18	M	L3 Compression Fracture	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
45	11/02/2020	29	M	L5S1 Listhesis with Radiculopathy	L5S1 TLIF	Dr. Rishi M Kanna	Observer
46	11/02/2020	55	M	L1 AO B2 with Normal Neurology	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
47	11/02/2020	35	F	L4L5 Traumatic Disc Extrusion with Cauda Equina Syndrome	L4L5 Decompression TLIF	Dr. Rishi M Kanna	Observer
48	11/02/2020	19	F	L3L4, L4L5, L5S1 Disc Extrusion with Neurodeficit Cauda Equina Syndrome	L3L4, L4L5, L5S1 Decompression with Discectomy	Dr. Rishi M Kanna	Observer
49	11/02/2020	45	M	T10T11 AO B2, T11 A3 Injury with Normal Neurology	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
50	12/02/2020	28	F	T12 Aggressive Hemangioma with Myelopathy S/P T10-L2 Posterior Decompression with Stabilisation and Biopsy (06/02/2020)	T12 Corpectomy with Cage Reconstruction	Prof. S. Rajasekaran	Observer
51	12/02/2020	50	M	L4L5, L5S1 Discogenic Stenosis with Radiculopathy	L4-S1 TLIF	Dr. Rishi M Kanna	Observer
52	12/02/2020	45	M	T12 L1 AO Type C Injury ASIA A	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
53	17/02/2020	65	M	T7 Pathologic Fracture sec to Multiple Myeloma	T7 Kypoplasty	Prof. S. Rajasekaran	Observer
54	17/02/2020	56	M	C6C7 Disc Prolapse with Radiculopathy	C6C7 ACDF	Dr. Rishi M Kanna	Observer
55	17/02/2020	75	M	L4L5 Facetal Cyst, Right	L4L5 Cyst Excision and Decompression	Prof. S. Rajasekaran	Observer
56	17/02/2020	58	F	L4L5 Extraforaminal Disc Prolapse with Radiculopathy	Transforaminal Endoscopic Discectomy L4L5	Dr. Rishi M Kanna	Observer
57	17/02/2020	54	M	C4C5 Disc Osteophyte	C4C5 ACDF	Prof. S.	Observer



	0			Complex with Bilateral Radiculopathy		Rajasekaran	r
58	17/02/2020	52	M	L2 AO A4 Fracture with Normal Neurology	Posterior Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
59	18/02/2020	54	F	L5 S1 Lytic Listhesis with Radiculopathy	L5S1 TLIF	Dr. Rishi M Kanna	Observer
60	18/02/2020	65	F	L2L3, L4L5 Spinal Canal Stenosis	L2L3, L4L5 Decompression; L2L3 Fusion	Dr. Rishi M Kanna	Observer
61	19/02/2020	37	M	L5S1 Disc Extrusion with Radiculopathy	L5S1 Microdiscectomy	Prof. S. Rajasekaran	Observer
62	19/02/2020	68	F	L2 OVCF with Pseudoarthrosis	Vertebroplasty	Prof. S. Rajasekaran	Observer
63	19/02/2020	45	F	C6C7 Disc Extrusion	C5C7 ACDF	Prof. S. Rajasekaran	Assisted
64	19/02/2020	23	F	L4L5 Disc Extrusion	L4L5 Microdiscectomy	Prof. S. Rajasekaran	Observer
65	19/02/2020	45	F	L5S1 Spondyloptosis with bilateral Radiculopathy	L4-S1 Fusion with Delta Fixation	Dr. Ajoy P Shetty	Observer
66	20/02/2020	8	F	Neuromuscular Scoliosis Post Halo Gravity Traction	Halo Ring Removal Growth Rod Application	Dr. Ajoy P Shetty	Observer
67	21/02/2020	14	M	AIS Lenke 1AN	STF T4-L1 under AIRO navigation	Prof. S. Rajasekaran	Observer
68	21/02/2020	69	M	L3L4, L4L5 Discogenic Stenosis with Bilateral Radiculopathy	L3L4, L4L5 Decompression and Discectomy	Prof. S. Rajasekaran	Observer
69	21/02/2020	45	F	L4L5 Discogenic Stenosis with Radiculopathy, Right	L4L5 Microdiscectomy with Posterior Decompression	Prof. S. Rajasekaran	Observer
70	21/02/2020	13	M	EOS Post Growth Rod Insertion	Rod Revision and Distraction	Dr. Ajoy P Shetty	Observer
71	22/02/2020	15	F	AIS Lenke 6	PISF T4-L3	Dr. Ajoy P Shetty	Observer
72	24/02/2020	48	M	L5S1 Disc Extrusion with Right Sided Radiculopathy	Endoscopic Discectomy	Dr. Rishi M Kanna	Observer
73	24/02/2020	22	F	Prolapsed Disc L4L5 with Bilateral Radiculopathy	L4L5 Microdiscectomy	Dr. Rishi M Kanna	Observer
74	24/02/2020	50	M	L4L5 Extruded Disc with Bilateral Radiculopathy	L4L5 Midline Decompression with Discectomy	Dr. Rishi M Kanna	Observer
75	24/02/2020	56	M	L1L2 Spondylodiscitis S/P L2-L4 Instrumented Fusion	Proximal Extension of Instrumentation and Fusion	Dr. Rishi M Kanna	Observer
76	24/02/2020	46	M	T7T8 Type B2, T8 AO A4 ASIA A	Posterior Decompression with Instrumented Stabilisation	Dr. Rishi M Kanna	Observer
77	24/02/2020	17	M	C4C5 AO Type C Injury with ASIA A Neurology	C4C5 Corpectomy C3 to C5 Fusion	Dr. Rishi M Kanna	Observer
78	25/02/2020	45	M	Type 2 Odontoid Fracture with Normal Neurology	Odontoid Screw Fixation	Dr. Rishi M Kanna	Observer



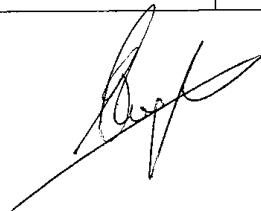
79	25/02/2020	25	M	L4L5 Discogenic Stenosis	L4L5 Posterior Decompression	Dr. Rishi M Kanna	Observer
80	26/02/2020	50	M	Type 2 Odontoid Fracture Central Cord Syndrome	C1C2 Posterior Stabilisation	Dr. Ajoy P Shetty	Observer
81	27/02/2020	53	M	C4C5 Disc Osteophyte Complex Nurick 3 Myelopathy	C4C5 ACDF	Dr. Rishi M Kanna	Observer
82	27/02/2020	68	M	L3L4, L4L5 Degenerative Listhesis with Stenosis	L3-S1 Decompression and Fusion	Dr. Rishi M Kanna	Observer
83	27/02/2020	33	M	T3T4 AO B2 Injury with ASIA A Neurology	Posterior Decompression with Instrumented Stabilisation	Dr. Ajoy P Shetty	Observer
84	28/02/2020	8	F	Congenital Thoracic Kyphoscoliosis with Neurodeficit S/P Dethethering of cord (2015) Excision of Lipomyelomeningocele (2012)	T3 to L3 Posterior Instrumented Deformity Correction and Fusion under AIRO navigation	Prof. S. Rajasekaran	Observer
85	28/02/2020	45	F	Intradural Extramedullary Lesion T2T3	Excision Biopsy	Prof. S. Rajasekaran	Observer
86	01/03/2020	48	M	C6C7 Disc Prolapse with Radiculopathy	C6C7 ACDF	Dr. Rishi M Kanna	Observer
87	01/03/2020	35	M	L4L5 Disc Extrusion with Radiculopathy	L4L5 Microdiscectomy	Dr. Rishi M Kanna	Observer
88	02/03/2020	17	F	Neuromuscular Left Thoracolumbar Scoliosis with Truncal Translation	T3-L4 Posterior Instrumented Deformity Correction and Fusion under AIRO Navigation	Prof. S. Rajasekaran	Observer
89	02/03/2020	16	M	Left Thoracic Neuromuscular Scoliosis	T5-L3 Posterior Instrumented Deformity Correction and Fusion under AIRO Navigation	Prof. S. Rajasekaran	Assisted
90	02/03/2020	58	M	C2-C7 OPLL with C4C5 instability Nurick 3 myelopathy	C1 - T2 Laminectomy; C1 Lateral Mass, C2-T2 Pedicle Screw Fixation under Navigation	Prof. S. Rajasekaran	Observer
91	04/03/2020	13	F	AIS Lenke 1 AN	PSF T4-L1	Dr. Ajoy P Shetty	Observer
92	04/03/2020	37	F	C2-T2 OPLL	C2-T2 Instrumented Laminectomy under Navigation	Prof. S. Rajasekaran	Observer
93	04/03/2020	50	F	L5S1 Spondylodiscitis	L5S1 Biopsy, Decompression and Fusion	Prof. S. Rajasekaran	Observer
94	04/03/2020	85	F	T11 OVCF	Vertebroplasty	Dr. Ajoy P Shetty	Observer
95	04/03/2020	55	F	T10T11 Ossified Ligamentum Flavum	T10 T11 Decompression with Posterior Instrumentation	Prof. S. Rajasekaran	Assisted



96	04/03/2020	55	M	C3C4 Traumatic Disc Prolapse with Central Cord Syndrome	C3C4 ACDF	Dr. Ajoy P Shetty	Observer
97	05/06/2020	18	M	Congenital Scoliosis with T10 Hemivertebra	T3-L3 Posterior Instrumented Deformity Correction	Dr. Ajoy P Shetty	Observer
98	05/03/2020	62	M	L4L5 Degenerative Listhesis with Stenosis	L4L5 TLIF	Dr. Ajoy P Shetty	Assisted
99	05/03/2020	27	F	L1L2 Spondylodiscitis, L2 Pathological Collapse	Posterior Instrumented Stabilisation, Decompression, L2 Vertebrectomy and Biopsy	Dr. Ajoy P Shetty	Observer
100	06/03/2020	50	M	T12 Pseudoarthrosis with Neurodeficit	Posterior Instrumented Stabilisation with T12 Vertebraloplasty	Dr. Ajoy P Shetty	Observer
101	06/03/2020	24	M	C6C7 Disc Prolapse with Radiculopathy, Right	C6C7 ACDF	Dr. Ajoy P Shetty	Observer
102	06/03/2020	16	F	Multifocal Tubercular Spondylodiscitis and Pathological Collapse of C7 and T7 with Myelopathy	C7 Reconstruction and Plating with Posterior Stabilisation	Dr. Ajoy P Shetty	Assisted
103	07/03/2020	24	M	C4C5 Type C Injury	C4C5 ACDF	Dr. Ajoy P Shetty	Observer
104	07/03/2020	49	M	C5C6 Type C Injury	C5C6 ACDF with Posterior Instrumented Lateral Mass Stabilisation	Dr. Ajoy P Shetty	Assisted
105	07/03/2020	45	M	Traumatic Disc Prolapse C6C7 ASIA A with C7 isthmic fracture	C6C7 ACDF with Posterior Stabilisation	Dr. Ajoy P Shetty	Observer
106	07/03/2020	24	M	C4C5 Type C Injury	C4C5 ACDF	Dr. Ajoy P Shetty	Observer
107	07/03/2020	60	M	Right Superior and Inferior Pubic Rami, L5 Transverse Process and Zone 2 Sacral fracture	Spine Pelvic Fixation	Dr. Ajoy P Shetty	Observer
108	07/03/2020	57	M	L5S1 Disc Extrusion with Radiculopathy, Left	L5S1 Microdiscectomy	Dr. Ajoy P Shetty	Observer
109	07/03/2020	50	F	C5C6 Spondylodiscitis and Pathological Collapse of C5 with Quadriplegia and Bowel/ Bladder Involvement	C5C6 debridement, biopsy, Reconstruction and Plating	Dr. Ajoy P Shetty	Observer
110	11/03/2020	51	M	L4L5 Disc Prolapse with Neurodeficit	L4L5 Microdiscectomy	Dr. Ajoy P Shetty	Observer
111	11/03/2020	60	M	CSM C3-C6 Nurick 3	C3-C6 ACDF	Dr. Ajoy P Shetty	Observer
112	11/03/2020	74	M	L2 Pseudoarthrosis with Neurodeficit	Posterior Instrumented Stabilisation with Cement Augmentation	Dr. Rishi M Kanna	Observer
11	11/03/2020	32	M	L4L5 Central Disc	L4L5 Microdiscectomy	Dr. Rishi M	Observer

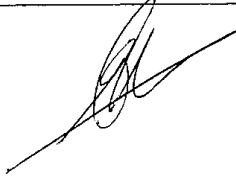


3	0			Extrusion with Radiculopathy		Kanna	r
11 4	11/03/202 0	61	F	L2L3 Adjacent Segment Degeneration with Neurodeficit	Extension of Instrumentation, Decompression and Fusion	Dr. Ajoy P Shetty	Observer
11 5	12/03/202 0	29	M	C5C6 Disc Osteophyte Complex with Radiculopathy, Right Status: C5C6 Discectomy 2017	C5C6 ACDF	Dr. Ajoy P Shetty	Observer
11 6	12/03/202 0	47	F	T12 fracture AO A3	Posterior Instrumented Stabilisation	Dr. Ajoy P Shetty	Observer
11 7	12/03/202 0	16	F	Multifocal Tb Spondylodiscitis with C7 Pathological Collapse with Myelopathy	Posterior Instrumented Stabilisation with Decompression	Dr. Ajoy P Shetty	Observer
11 8	12/03/202 0	50	F	C5C6 Spondylodiscitis and Pathological Collapse of C5 with Quadriplegia and Bowel Bladder Disturbance S/P Anterior C5C6 debridement, reconstruction with cage strut grafting and plating C3-C7	Posterior Instrumented Stabilisation C3-C7	Dr. Ajoy P Shetty	Observer
11 9	13/03/202 0	48	F	Post Tb Kyphotic Deformity with Thoracic Myelopathy	Kyphectomy/ Posterior Instrumented Deformity Correction and Fusion	Prof. S. Rajasekaran	Observer
12 0	13/03/202 0	70	M	T10 Pseudoarthrosis (DISH)	T9-T12 Posterior Stabilisation	Prof. S. Rajasekaran	Observer
12 1	13/03/202 0	59	F	Post L2-S1 Stabilisation and Antibiotic Beads Application for L4-S1 Spondylodiscitis S/P L4L5 Fusion 10/2019	Debridement/ Removal of Antibiotic Beads/ Revision Instrumentation	Dr. Ajoy P Shetty	Assisted
12 2	14/03/202 0	55	M	CSM sec. To C3C4, C4C5 Disc Osteophyte Complex	C4 Corpectomy with Plating	Dr. Ajoy P Shetty	Observer
12 3	14/03/202 0	14	F	Tethered Cord Syndrome + Lipomyelomeningocele with Bladder Dysfunction L5S1 Spina Bifida	Release of Tethered Cord and Lipoma Excision	Dr. Murali	Observer
12 4	17/03/202 0	9	M	Congenital Scoliosis with T9-T12 unilateral bar, left Post Growing Rod Application, Left Rib Hook and L3L4 Pedicle Screws, left	Revision Surgery/ Application of Growing Rod Bilateral	Dr. Ajoy P Shetty	Observer
12 5	18/03/202 0	12	F	AIS Lenke 3BN	PSF T2-L4	Prof. S. Rajasekaran	Observer
12 6	18/03/202 0	67	M	L3L4 Adjacent Segment Degeneration with	L2-Ilium Fusion	Prof. S. Rajasekaran	Observer

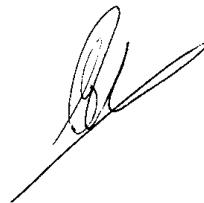


				Neurodeficit Post L4-S1 fusion			
12 7	18/03/202 0	66	F	T9 Lesion To consider Infective Spondylitis vs Spine metastasis	T9 Transpedicular Biopsy	Dr. Ajoy P Shetty	Observer
12 8	18/03/202 0	46	M	Thoracic Myelopathy sec to Ossified Ligamentum Flavum T10T11	Posterior Decompression with Instrumentation	Dr. Ajoy P Shetty	Observer
12 9	19/03/202 0	21	M	AIS Lenke 6	PSF T3-L4	Dr. Ajoy P Shetty	Observer
13 0	19/03/202 0	43	F	L5S1 Lytic Listhesis Grade3 with Radiculopathy	TLIF L5S1	Dr. Ajoy P Shetty	Observer
13 1	19/03/202 0	44	F	L4L5 Lytic Listhesis with Radiculopathy, Right	TLIF L4L5	Dr. Ajoy P Shetty	Observer
13 2	19/03/202 0	51	M	C4C5, C5C6 Traumatic Disc Prolapse ASIA C	ACDF, C4C5, C5C6	Dr. Ajoy P Shetty	Observer
13 3	19/03/202 0	56	M	CSM due to Cervical Spinal Stenosis C3C4, C4C5	ACDF C3C4, C4C5	Dr. Ajoy P Shetty	Observer
13 4	19/03/202 0	55	M	T10 T11 Type C Injury with ASIA A Neurology	Posterior Instrumented Stabilisation with Decompression	Dr. Ajoy P Shetty	Observer
13 5	20/02/202 0	20	M	L1 Intradural Tumour with <u>Left Radiculopathy</u>	Excision of Intradural Tumour	Dr. Murali	Observer
13 6	20/03/202 0	17	M	Prolapsed Disc L4L5	Microdiscectomy L4L5	Dr. Ajoy P Shetty	Observer
13 7	20/03/202 0	36	M	L5 S1 Disc Extrusion with Radiculopathy, Right	Endoscopic Discectomy L5S1, Right	Dr. Ajoy P Shetty	Observer
13 8	25/03/202 0	22	F	T8 -T12 Tb Spondylodiscitis with Epidural Abscess and Kyphoscoliosis	Posterior Decompression, Biopsy, Instrumented Deformity Correction and Fusion Under Neuromonitoring	Dr. Ajoy P Shetty	Observer
13 9	25/03/202 0	63	M	L3L4, L4L5 Degenerative Listhesis with Spinal Canal Stenosis; Cauda Equina Syndrome, Chronic. Ischemic Heart Disease, Hypertensive	L3L4, L4L5 TLIF	Dr. Ajoy P Shetty	Observer
14 0	30/03/202 0	10	F	Right Thoracic with Left Lumbar Scoliosis (Marfanoid Features)	T2 – L4 Posterior Instrumented Spinal Fusion under AIRO Navigation	Dr. Ajoy P Shetty	Observer
14 1	04/04/202 0	14	F	Right Thoracic with Left Lumbar Scoliosis with Marfanoid Features	T2-L4 Posterior Instrumented Deformity Correction and Spinal Fusion under Navigation	Dr. Ajoy P Shetty	Observer
14 2	05/04/202 0	14	F	Tethered Cord Syndrome w/ Lipomyelomeningocele with Bladder Dysfunction S/P Release of Tethered	Re-exploration with Water Tight Closure of Muscle Fascia	Dr. Murali Dr. Hari	Observer

				Cord with Lipoma Excision (14/03/2020) CSF Leak			
14 3	06/04/202 0	74	M	Multiple Spinopelvic Lytic Lesions with Normal Neurology S/P Bone Marrow Biopsy 05/03/2019	Multiple Biopsy Spine and Pelvis	Dr. Rishi M Kanna	Observer
14 4	07/04/202 0	35	M	L4L5 Discogenic Stenosis with Bilateral Radiculopathy Cauda Equina Syndrome	L4L5 Midline Decompression with Microdiscectomy L4L5	Dr. Rishi M Kanna	Observer
14 5	10/04/202 0	28	M	L1 AO B2 Injury with Conus Medullaris Syndrome	Posterior Instrumented Stabilisation with Decompression	Dr. Ajoy P Shetty	Assisted
14 6	10/04/202 0	41	M	L4 AO A4 Fracture with ASIA E Neurology	Posterior Instrumented Stabilisation	Dr. Ajoy P Shetty	Observer
14 7	11/04/202 0	47	M	L4L5 AO Type C Injury with Normal Neurology	Posterior Instrumented Stabilisation L3-L5	Dr. Ajoy P Shetty	Observer
14 8	11/04/202 0	55	M	C5C6 Type C Injury with ASIA E Neurology	C5C6 ACDF with Lateral Mass Screw Fixation	Dr. Ajoy P Shetty	Observer
14 9	23/04/202 0	54	F	L4L5 Pyogenic Spondylodiscitis L5S1 Spondylolisthesis with Radiculopathy	Transforaminal Lumbar Interbody Debridement and Fusion L4L5 / Posterior Decompression L5S1 with Posterior Stabilisation L4 – S1	Dr. Ajoy P. Shetty	Observer
15 0	23/04/202 0	42	M	L4L5 Discogenic Stenosis with Bilateral Radiculopathy Status: L5S1 TLIF 20/05/2017	L4 – L5 Decompression and Fusion	Dr. Rishi M. Kanna	Observer
15 1	27/04/202 0	14	F	Recurrent Hemangioma T2 with Compressive Myelopathy and Neurologic Deficit Status: C7-T4 Posterior Stabilisation; T2,T3 Laminectomy with Biopsy (28/11/2016) Angioembolization (18/04/2020) Extension of Instrumentation C7-T5, T2 Vertebrectomy with Anterior Harm's Cage Reconstruction and Fusion (20/04/2020)	Anterior Excision under AIRO CT Navigation and Neuromonitoring/ Revision of Harm's Cage to Expandable Cage	Prof. S. Rajasekaran	Assisted
15 2	01/05/202 0	40	M	L2L3 Intradural Lesion with Cauda Equina and	Tumor Excision, Biopsy	Prof. S. Rajasekaran	Observer

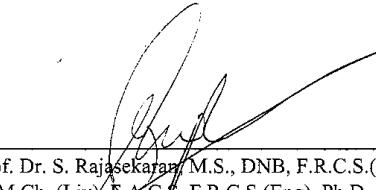


				Neurologic Deficit			
15 3	02/05/202 0	59	F	T9-T12 Spinal Cord Lesion with Paraplegia	T9-T12 Laminectomy, Durotomy, Decompression and Biopsy	Prof. S. Rajasekaran	Observer
15 4	02/05/202 0	62	M	C4C5 Disc Prolapse with Right Cervical Radiculopathy	C4C5 ACDF	Prof. S. Rajasekaran	Observer
15 5	05/05/202 0	63	M	C6C7 Traumatic Disc Prolapse with Left Upper Limb Neurodeficit	C6C7 ACDF	Dr. Rishi M. Kanna	Observer
15 6	06/05/202 0	37	M	Fracture Sacrum Right Zone 1 with Sacroiliac Joint Disruption Status: Right Tibia and Femur External Fixation (16-04-2020) Craniotomy (17/04/2020) Femur Nailing (20/04/2020) Flap Coverage Right Leg (22/04/2020) Tracheostomy (22/04/2020) ORIF Right Distal Radius (27/04/2020)	Spinopelvic Fixation (Sacroiliac Screws)	Dr. Ajoy P. Shetty	Observer
15 7	08/05/202 0	13	F	Adolescent Idiopathic Scoliosis Lenke 6CN	T4-L3 PISF	Prof S. Rajasekaran	Observer
15 8	08/05/202 0	27	M	L5 Radiculopathy Right Sec to L4L5 Disc Prolapse	Selective Nerve Root Block Injection L5S1 Right	Dr. Ajoy P. Shetty	Observer
15 9	09/05/202 0	63	M	C3-C7 OPLL with myelopathy	C3-C7 Laminectomy	Dr. Rishi M. Kanna	Observer
16 0	09/05/202 0	40	F	L4L5 stenosis with radiculopathy	L4L5 Decompression with microdiscectomy	Prof. S. Rajasekaran	Observer
16 1	09/05/202 0	54	F	L5-S1 Extruded Disc with right radiculopathy	L5S1 Microdiscectomy	Prof. S. Rajasekaran	Observer
16 2	13/05/202 0	74	M	T12 OVCF with pseudoarthrosis	Posterior instrumented stabilization with PCV	Dr. Ajoy P. Shetty	Observer
16 3	13/05/202 0	45	M	L5S1 Disc Prolapse	L5S1 Microdiscectomy	Dr. Ajoy P. Shetty	Observer
16 4	15/05/202 0	53	M	C5C6 AO type C injury with normal neurology	C5C6 ACDF	Dr. Ajoy P. Shetty	Observer
16 5	15/05/202 0	63	M	L2-L5 Epidural Abscess	L2-L5 Laminectomy with drainage of abscess	Dr. Ajoy P. Shetty	Observer
16 6	16/05/202 0	60	M	C6C7 AO type C injury ASIA A neurology	C6C7 ACDF with LMF	Dr. Ajoy P. Shetty	Observer
16 7	20/05/202 0	65	F	Atlanto-occipital assimilation with atlantoaxial dislocation and basilar invagination. Post transoral odontoid resection	Foramen Magnum Decompression, Occipito cervical Fusion	Prof. S. Rajasekaran	Observer
16 8	20/05/202 0	55	F	T11 T12 IDEM lesion with myelopathy	T11 T12 IDEM excision and biopsy	Prof. S. Rajasekaran	Observer



16 9	20/05/202 0	54	F	C1C2 arthritis	C1C2 Fusion	Dr. Ajoy P. Shetty	Observe r
17 0	22/05/202 0	36	M	Epidural Lipomatosis	L2-S1 decompression	Prof S. Rajasekaran	Observe r
17 1	23/05/202 0	53	M	L4L5 Disc Extrusion	L4L5 Transforaminal PELD	Dr. Rishi M. Kanna	Observe r


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Chair, AO Spine International Board
President Elect, Asia Pacific Spine Society