

## Group II Report

### **APSS DePuy Synthes Travelling Fellowship 2017**

***August 30 to September 24, 2017***

Group 2 Fellows:

**1. Dr. Kai Cao (China)**

Associate Prof., Spine surgeon, the First Affiliated Hospital of Nanchang University, China.

**2. Dr. Bishnu Babu Thapa (Nepal)**

Assistant Prof. Orthopaedic Spine surgeon, Nepalese Army Institute of Health Science (NAIHS), Kathmandu, Nepal.

**3. Dr. Sharif Ahmed Jonayed (Bangladesh)**

Assistant Prof., Orthopaedic spine surgeon, National Institute of Traumatology and Orthopaedic Rehabilitation, Sher-E-Bangla Nagar, Dhaka, Bangladesh.

**4. Dr. Simon Toftgaard Skov (Denmark)**

SICOT Fellow, The Spine Section, Department of Orthopaedic Surgery, Aarhus University Hospital, Denmark



*Dr. Cao, Dr. Jonayed, Dr. Bishnu, Dr. Skov*

**August 30<sup>th</sup>**

We arrived in Singapore on the same day for the 2017 travelling fellowship. The accommodation at our first stay of the fellowship was a comfortable, and the free Wi-Fi allowed us to communicate with our family easily. The Gym, swimming pool and tasty breakfast endowed this hotel high standard. Moreover, it was near NUH, which let us save time to reach hospital.



*Our hotel at the first destination of our journey.*

**August 31<sup>th</sup>**

The first day in National University Hospital, Singapore. Dr. Andrew picked us up at 7am in the hotel lobby, we arrived at NUH in 10 minutes. We introduced ourselves one by one to Dr. Gabriel Liu, Lau, Dennis, John and Raymond in the spine round. Dr. Cao presented: The accuracy and safety of subaxial cervical pedicle screw insertion by using lateral vertebral notch-referred technique and Dr. Bishnu spoke about the Management of Pott's spine. After that, Dr. Gabriel introduced the Spine Division, history of NUH and their recent spine work and research, achievements and future perspective. Dr. John introduced recent NUH study results regarding tether technique in treating juvenile scoliosis. Finally, Dr. Raymond introduced his research progress of the controlled-release BMP-2 system.





Spine Division  
UOHC, NUH  
APSS Travelling Fellowship 2017



*All fellows together with NUH Singapore Spine doctors.*

Then we went to OT to observe a MIS instrumentation of a traumatic lumbar fracture at T12 without severe compression. Dr. Lau performed the procedure according to his plan, to fix the fracture percutaneously from T10 to L2 skipping T12 without decompression due to neurologic status being intact. With the intraoperative fluorography assistance, surgery ended smoothly.



*Dr. Lau was operating his case.*

After lunch, Dr. Lau finished fluoroscopic guided selective nerve root block on a patient with right L5 radiculopathy.

We had NUH spine division dinner at a seafood restaurant. It was a gorgeous meal including the Singaporean specialty called chili crab. All of us were impressed by the hospitality of the spine surgeons at NUH.



*NUH Spine Division dinner.*

### **September 1<sup>st</sup>**

National holiday of Singapore.

### **September 2<sup>nd</sup>**

Singapore Orthopaedic Association Conference for aspiring orthopedic surgeons was organized at NUH this Saturday. We were picked up at 7am to attend this meeting. The topic of the day was the management of bony spine lesions. Hosted by Dr. Lau and chaired by Prof. Naresh. A number of spine tumor cases were presented and discussed. Four surgeons of Singapore Orthopaedic Association stated their expert opinions about diagnosis and therapy strategy.

Immediately after SOA meeting was the ENCORE 2017 NUH Spine Public Forum: Spine Condition and Treatment: What You Need to Know, chaired by Prof. Gabriel Liu. We all were invited to give a short lecture about prevention of chronic neck and lower back pain from our perspectives.



*Dr. Cao and Dr. Bishnu speaking at the Public Forum NUHS.*



*Dr. Skov speaking and Prof. Liu & Dr. Jonayed answering questions from the audience after his lecture.*





*The four fellows flanking Prof. Liu after 2017 NUH Spine Public Forum. Two lecturing halls were fully seated for the Spine Division Public Spine Forum, a huge interest and many questions about neck and lumbar pain from the general public audience.*

### **September 3<sup>rd</sup>**

Sunday, free and easy exploring Singapore.

### **September 4<sup>th</sup>**

Early pick up by Dr. Dennis. Breakfast in the hospital dining room. Surgery with Dr. Dennis. The first case was degenerative lumbar disease in a 54-year-old female with multiple comorbidities, requiring bilateral PLIF at L5/S1, L4/5, TLIF at L3/4, bilateral decompression and facets fusion at L2/3, using BMP for better fusion rate at L5/S1, L4/5 and L3/4.



*Dr. Dennis started his surgery which was a degenerative lumbar disease.*

We were introduced to a new AO Spine fellow Dr. Yoshinori from Sapporo Medical College Orthopaedic Department, Japan, who started his 1-month AO spine fellowship the same day. We discussed sagittal balance and fusion and the use of and latest evidence of BMP with Dr. Dennis.

Afterwards, we attended Prof. Naresh outpatient spine clinic, observing and discussing several cases. He shared his experience in a wide specter of spine problems ranging from TB, primary spine tumor as well as degenerative cervical and lumbar spine, deformity and osteoporotic fractures. Dr. Dennis discussed low radiation EOS 3D imaging and hosted dinner with delicious Japanese food.



*Dr. Skov, Dr. Cao, Dr. Dennis, Dr. Bishnu, Dr. Jonayed and AO Spine fellow, Dr. Yoshinori.*

### **September 5<sup>th</sup>**

Attending surgery with Dr. John Ruiz. Lumbar spinal stenosis in middle age male smoker with tandem stenosis, and previous cervical and lumbar decompression surgeries some years earlier. Planned for MIS L3/4, L4/5 TLIF and posterior instrumentation L3-L5. Converted to open procedure because of hardware problems and adhesions at the site previously decompressed.

Discussion with Dr. Dennis Hey about TLIF procedure, indications, and other surgical management of lumbar lordosis. Followed by a PVP procedure for a pathologic L3 fracture caused by multiple myeloma in an elderly gentleman.

In the evening, all of us including Dr. Ravish and Dr. Yoshinori were invited by Prof. Naresh Kumar. His wife Mona had prepared the most delicious dinner for us to enjoy in their lovely home.

### **September 6<sup>th</sup>**

Early morning pick up. Presentations and discussion by APSS fellows Dr. Jonayed and Dr. Skov for the NUH Orthopaedic Department, chaired by Prof. Naresh Kumar.

A patient planned for robot assisted MIS TLIF procedure reported significant improvement of his lower extremity radiculopathy and the procedure was cancelled yesterday afternoon. Unfortunate for our group – but good for the patient. Instead



Prof. Tambiah explained the robotic assisted procedures, indications, tips and pitfalls from his experience.

We had the grand research tour in the afternoon. We visited the NUS biomechanical and histology research laboratory. We were informed on some of the present and past porcine and cadaveric studies by Prof. Wong and Prof. Liu. Then we visited Prof. Wong's tissue engineering laboratory; this is a part of the NUS tissue engineering program, guided by Mr. Dominic Tey.

Afterwards we said goodbye with some of our generous hosts who had taken good care of us. Sharing knowledge in spine surgery, spine related problems and management as well as a week-long guided tour in the true multinational Singaporean culture and cuisine, with many memorable moments.

### **September 7<sup>th</sup>**

Transfer day. Early pickup at hotel at 5.30 am to the airport. Direct connection to Seoul, Korea. Arrival in the afternoon at the Sheraton hotel, only a few minutes walking distance from St. Mary Hospital in Seoul. Spending some of the waiting time to discuss different topics, and to get to know each other.

### **September 8<sup>th</sup>**

We were welcomed by Ms. Eunhwa and Ms. Kim from the administration and the local spine fellow Dr. Ahn from Seoul St. Mary's Hospital.

We met Prof. Kee Yong Ha in the operating theater and attended surgeries the rest of the day. First we had two degenerative lumbar cases, receiving planned first stage surgeries of multiple XLIFs/OLIFs. They were planned for post operative MRI control and second stage posterior surgery with fusion 5 days later. Prof. Ha shared his experiences and recommendations exemplified by several other cases emphasizing tips and pitfalls.



*Dr. Skov, Dr. Cao, Prof. Ha, Dr. Jonayed, Dr. Bishnu, Prof. Ha in OT.*

Next, we had a proximal adjacent level problem in a 67-year-old male (spinal stenosis and neuroforaminal stenosis, partially due to facet hypertrophy 13 years after L4-S1 fusion surgery). Main symptoms were radiculopathy and lumbar pain during the last years after many years without symptoms.

Decompression, L2-3 PLIF and extending the instrumented posterior spinal fusion was considered but Prof. Ha had decided to remove the old implants and make a wide decompression followed by instrumented posterior fusion L2-L3, because of good sagittal balance, with acceptable lordosis and good bony fusion in preoperative imaging.



In between the cases, Prof. Ha showed a number of cases of lumbar degeneration, decreased lumbar lordosis. Discussing and emphasizing the importance of considering risks of PJK and the importance of remembering to consider the stretch of gluteal muscles in correction of pelvic retroversion and the pain/discomfort it may cause.

After the surgeries, visiting Prof. Jun-Yeong Seo from Jeju National University Hospital, presented a case of the rare Gorham's/Gorham-Stout disease in a young woman with pain and lower extremity monoparesis for 10 days. CT and MRI scans showing pathological fracture T2 due to severe osteolysis at that level, also revealing pedicle dysplasia and severe scoliosis deformity, acutely exaggerated by the fracture.

Dinner hosted by Prof. Ha and the Spine Division at a local restaurant having a taste of the Korean Cuisine in good company.



*Dinner hosted by Prof. Ha and the Spine Division at a local restaurant in Seoul.*

### **September 9<sup>th</sup>**

Guided City Tour Seoul by local spine fellow Dr. Park.

### **September 10<sup>th</sup>**

Free and easy on Sun.

### **September 11<sup>th</sup>**

Day started with the presentation by Dr. Bishnu and Dr. Cao. Then we went to the theater & observed the case of #nonunion of compression fracture of D12 & L1 vertebra of a 61 years old male who underwent surgery 5 days back. Today Prof. Kim



performed 2<sup>nd</sup> stage surgery of the same case that is corpectomy and anterior reconstruction through lateral approach. Later on, Dr. Sang performed the 2<sup>nd</sup> stage surgery of a 57 years old lady who underwent OLIF at L4L5, L5S1 & XLIF at L2L3, L3L4 few days back for lumbar canal stenosis with radiculopathy. Today he did posterior decompression and instrumented stabilization from L1-S1. In the evening we had a nice dinner with Professor Ha, Professor Kim, Dr. Sang along with other Fellow. The venue was really nice in the floating island. Food was very comfortable and tasty one. Professor Ha made the party very enjoyable by his amusing humor.

### **September 12<sup>th</sup>**

In the morning, different cases were presented by the resident and a very fruitful discussion was held. Later on, we attended the Professor Ha's OPD clinic. There were so many patients with different pathology. Professor Ha explained us about his overall management plan. Then we took our lunch with Dr. Park. He is very nice guy working as a fellow here. Later on, he took us for Seoul site seeing. We learned a lot of things especially Korean history and contemporary Asian culture history. The most important moment was visiting fish market and exploring various sea food dishes. The food was so fresh and so tasty that we must remember all times. Finally, Dr. Park dropped us to our hotel.

### **September 13<sup>th</sup>**

It's our last day at St. Mary's Hospital. Day started with the presentation by Dr. Jonayed & Dr. Skov. A group photo was taken with the spine division of the hospital. As a token of souvenir, a nice T-shirt and cap was given to each of us. Then we went to the operation theater for the 2<sup>nd</sup> stage surgery of 69 years lady with degenerative scoliosis who underwent XLIF at L2-L3, L3-L4 5 days earlier. Today Professor Ha is going to perform posterior decompression from L4 to S1 and instrumented fusion(PLIF) at L4L5, L5S1 and Posterolateral fusion from D10 to sacrum with additional sacroileal fixation. In the afternoon, we observed 2<sup>nd</sup> stage case of lumbar canal stenosis of elderly lady who underwent OLIF at L2L3, L3L4 few days back. Today, Dr. Sang performed instrumented fusion from L2 to S1.

### **September 14<sup>th</sup>**

Started travelling from Seoul to Coimbatore, India. It was almost a 26 hours journey. We arrived in Poppy's Hotel at 7 pm. This was a very nice hotel and very near Ganga Hospital. At 7.30 pm we had a nice dinner with Dr. Ajoy, consultant spine surgeon of Ganga Hospital.

### **September 15<sup>th</sup>**

In the early morning, we met Prof. Rajasekaran in the operation theater. He explained his case of congenital thoracolumbar kyphoscoliosis with hemivertebra at T12 of a 9yrs old girl and options were discussed. It was really a nice experience for us to observe the deformity correction and instrumented stabilization by using navigation system. We then observed the case of adolescent idiopathic scoliosis with posterior

instrumented stabilization done by Dr. Ajoy. After then we observed a very interesting case of ossified odontoidium of 13 years old girl. Prof. Rajasekaran explained us the management and steps of operation of C1C2 fixation and instrumented fusion. In the afternoon, we observed another interesting case of ossified ligamentum flavum at T9T10. Posterior decompression and instrumented stabilization was done. At night, we had a nice dinner with Dr. R.M. Kanna at BalleBalle restaurant in a North Indian restaurant. Food was very tasty and we enjoyed it a lot.

### **September 16<sup>th</sup>**

We reached hospital at 7.15 am. We presented our presentation topics and it was followed by a good discussion with Prof. Rajasekaran and his team. During the presentation, all orthopedic and spine team were presented. We had the photo session after the presentations.

Then we went to operation theatre and observed the following surgeries:



*All the travelling fellows, the APSS fellow and the orthopaedic spine consultants of Ganga Hospital: Prof. Rajasekaran, Dr. Kanna & Dr. Ajoy. Dinner at a local restaurant with Prof. Rajasekaran.*

- a) segmental OPLL C2-C4, C5-T1,T2-T4 with compressive neuropathy Nurick Grade 4 operated with C2-T4 decompression and posterior instrumentation.
- b) L4-L5 Recurrent Disc with left radiculopathy operated with PLIF L4-L5
- c) C2 Pars Fracture with D12 Chance Fracture operated with D10 –L2 posterior instrumentation and anterior C2-C3 fusion.
- d) L-S1 Stenosis with B/L radiculopathy, Decompression L4to S1 done

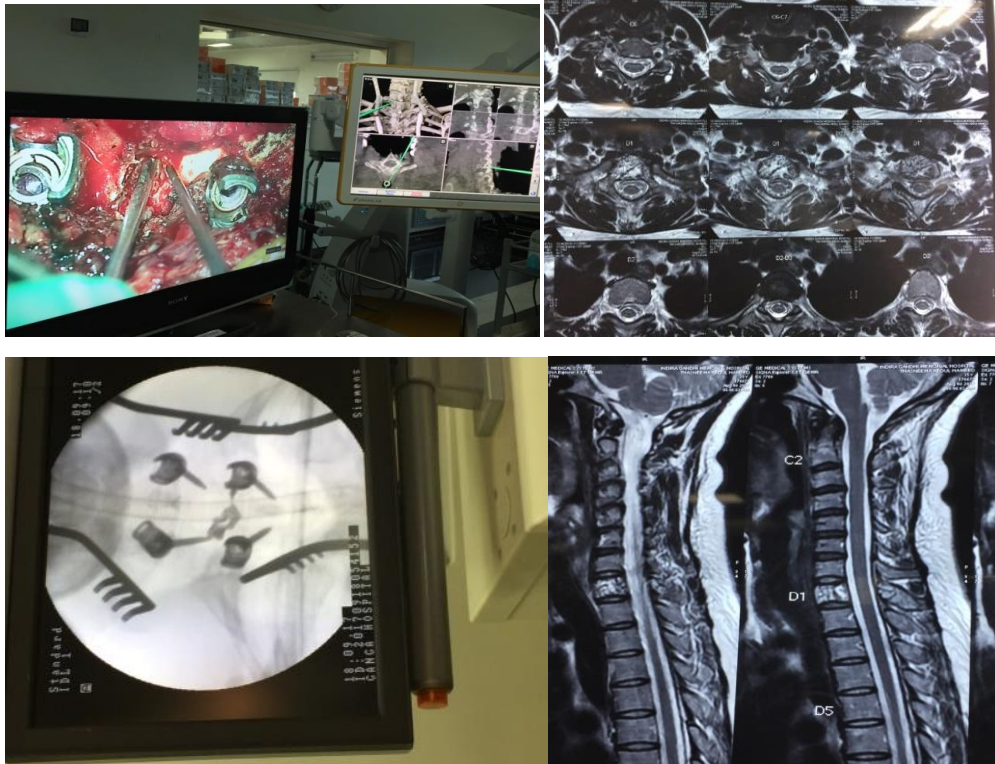
Surgery is over at around 6.30 pm. We came to hotel and Prof. came at 7.30pm, took us for dinner with a Japanese AO spine fellow, Dr Hayashi.

### **September 17<sup>th</sup>**

It's a public holiday, so there was no academic activities. Spine fellow Dr Shiva, was very kind to take us to visit some of the sights. For example, a 2000 year old temple and the Isha Yoga Meditation Centre.

### September 18<sup>th</sup>

We reached operation theatre at 7 am but Prof. had already started surgery and we joined. Prof. is very interested to teach us even during surgery which is really valued. We observed the most complex surgeries and all are performed by Prof. Rajasekaran like T1 Haemangioma, L4 hemivertebra with diastematomyelia, L1 diastematomyelia with thoracolumbar scoliosis. We are very lucky to see such complex surgery in a single day. Operation was over by 7pm and we came back to our hotel and had dinner.



### September 19<sup>th</sup>

We reached hospital at 7.15am for clinical meeting. There were two presentations, One by Prof. Rajasekaran and the other one by AO Spine fellow. Prof. had given his talk on disc infection by low virulent organism. It was really worthful and interesting. Dr Hayashi presented on "The mechanical stress induces fiber disruption and cartilage matrix increase in ligamentum flavum". This was also interesting presentation.

After presentation we went to Outpatients clinic with Prof. We got opportunity to see many complex cases. Prof is very interested to teach us as much as possible. We discussed many cases like Spinal deformity, Spinal stenosis, Cervical myelopathy, Disc prolapsed and post-operative cases and care.





*Prof. Rajasekaran in the outpatient clinic.*

We went to Spinal cord injury rehabilitation center after OPD clinics. Dr. Philip, spine fellow took us to Center and Mr. Bigmesh, who is in charge of center, showed us the place and described the treatment.

### **September 20<sup>th</sup>**

This day is the last day in Ganga Hospital. Prof had performed a complex case, Congenital right thoracic and left lumbarkyphoscoliosis (T8 rt.hemivertebraT6-8 block vertebra), deformity correction with posterior instrumentation and fusion and other four spine cases observed performed by Dr. Rishi and Dr.A. S. Shetty.

Then at 3pm spine fellow Dr. Shiva took us to visit Diamond Factory and Temple.

### **September 21<sup>st</sup>**

We all left Ganga Hospital,Coimbatore, transfer to Goa to participate the APSS Annual Conference. Heavy rainfall in Mumbai delaying all transfers complicated the journey to our final destination. Luckily, Prof. Rajasekaran was travelling the same day and managed to get our flight itinerary changed for us to arrive Goa with only a few hours delay avoiding the chaos reported from the Mumbai Airport.

### **September 22<sup>nd</sup> - 24<sup>th</sup>**

We attended the APSS Annual Conference at the Grand Hyatt Hotel, Goa to conclude our fellowship.

Sunday, we had our goodbyes and went home.

Thanks to APSS and all the institutions that hosted us for making this fellowship possible. We are grateful for the hospitality and the willingness to share knowledge and expertise everywhere we went. Most of all, thank you to all the colleagues who made this trip really memorable, both in as well as out of the hospital. We cherish the many new friendships we made along this journey.

**Case log of a number of the cases attended in the OTs:**

No	Date	Procedure	Surgeon
<b><i>National University Hospital Singapore, Singapore</i></b>			
1	31.08.2017	MIS instrumentation of Chance Fracture fixation	Dr. Lau
2	31.08.2017	Nerve root block of L5 radiculopathy	Dr. Lau
3	04.09.2017	Lumbar decompression, intervertebral fusion, facets fusion and instrumentation of degenerative spinal stenosis	Dr. Dennis Hey
4	05.09.2017	Decompression, TLIF and instrumentation of lumbar spinal stenosis	Dr. John Ruiz & Dr. Dennis Hey
5	05.09.2017	PVP procedure of pathological L3 fracture (multiple myeloma)	Dr. Dennis Hey
6	06.09.2017	Robotic assisted MIS TLIF	Prof. J. Tambiah
<b><i>St. Mary's Hospital, Seoul, Korea</i></b>			
7	08.09.2017	Procedure 1 <sup>st</sup> stage: MIS XLIF L1/2 + L2/3 & OLIF L4/5 of severe lumbar degeneration.	Prof. Kee Yong Ha
8	08.09.2017	Procedure 1 <sup>st</sup> stage: MIS XLIF L2/3 + L4/5 of lumbar degeneration.	Prof. Kee Yong Ha
9	08.09.2017	TLIF, decompression, posterior instrumented fusion of adjacent level lumbar spinal stenosis	Prof. Kee Yong Ha
10	11.09.2017	Corpectomy and anterior reconstruction of #T12,L1 of a previously posterior instrumented vertebra	Prof. Kim
11	11.09.2017	Posterior decompression & instrumented stabilization L1-S1	Dr. Sang
12	13.09.2017	Posterior decompression & instrumented stabilization and fusion T10-S1	Prof. Kee Yong Ha
13	13.09.2017	Posterior decompression & instrumented stabilization and fusion L2-S1	Dr. Sang
<b><i>Ganga Hospital, Coimbatore, India</i></b>			
14	15.09.2017	T12 hemivertebrectomy and posterior instrumented stabilization of congenital kyphoscoliosis	Prof. S. Rajasekaran

15	15.09.2017	Deformity correction and posterior instrumented stabilization of adolescent idiopathic scoliosis	Dr. A.P. Shetty
16	15.09.2017	C1-C2 fixation and instrumented fusion of C1-C2 dislocation (osodontoideum with compression and dystrophic C2)	Prof. S. Rajasekaran
17	15.09.2017	Decompression and instrumented fusion of L4/5 spinal stenosis	Dr. A.P. Shetty
18	15.09.2017	Posterior decompression & instrumented stabilization of ossified ligamentum flavum at T9-T10.	Prof. S. Rajasekaran
19	16.09.2017	Decompression and instrumented fusion L4-L5	Dr. A.P. Shetty
20	16.09.2017	Nerve root block lumbar radiculopathy	Dr. A.P. Shetty
21	16.09.2017	Decompression and instrumented fusion C3-T4 of T2-T4 compressive myelopathy and ossified ligamentum flavum	Prof. S. Rajasekaran
22	16.09.2017	ACDF at C5-C6 fracture dislocation	Dr. A.P. Shetty
23	16.09.2017	PVP at T10, 12 osteoporotic fracture	Dr. A.P. Shetty
24	18.09.2017	Excision of aggressive hemangioma T1, cementing and posterior instrumented stabilization	Prof. S. Rajasekaran
25	18.09.2017	Excision of L3 diastematomyelia and L4 hemivertebrae, deformity correction, posterior instrumented fusion	Prof. S. Rajasekaran
26	18.09.2017	Excision of L2-3 intradural tumor	Prof. S. Rajasekaran
27	18.09.2017	Excision of L1 diastematomyelia and pediclescrew insertion for later stage scoliosis correction	Prof. S. Rajasekaran
28	20.09.2017	Deformity correction and posterior instrumented fusion of congenital right thoracic and left lumbar kyphoscoliosis	Prof. S. Rajasekaran
29	20.09.2017	Decompression, TLIF and instrumented fusion L4-L5	Dr. A.P. Shetty
30	20.09.2017	Decompression, TLIF and instrumented fusion L4-S1	Dr. A.P. Shetty