

**APSS DEPUY SYNTHES CLINICAL FELLOWSHIP (March 13- April 2, 2019)**  
**FELLOWSHIP REPORT**

**Dr Nischal Ghimire**

**Fellow**

Dr Nischal Ghimire

MBBS, MS Orthopaedics

Orthopaedic Surgeon

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**Host**

Professor Yukihiro Matsuyama

M.D., Ph.D.

Professor and Chairman

Department of Orthopaedic Surgery

Hamamatsu University School of Medicine

Hamamatsu, Japan

**Fellowship Duration:** March 13- April 2, 2019

**Fellowship Schedule**

<b>Time</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>7:00-8:30 am</b>	Spine Teaching and Journal Club	Pre-op Conference		Post-op Conference	
<b>8:30 am-12:00 pm</b>	Spine Clinic	Spine Surgery	Hospital Ward (Pre and Post Op assessment)	Spine Surgery	Hospital Ward and Case Discussion
<b>1:00-5:00 pm</b>	Spine Clinic	Spine Surgery	Spine Surgery at Satellite Hospital	Spine Surgery	Spine Surgery at Satellite Hospital
<b>5:00-7:00 pm</b>		Spine Surgery		Spine Surgery	
<b>7:00 pm</b>	Spine Conference	Post-op Conference			

After selection for APSS DePuy Synthes Clinical Fellowship; the APSS Secretariat, the Secretary at Department of Orthopaedics in Hamamatsu University School of Medicine and the APSS-APPOS Organizing Secretariat were in regular contact with me. They were very co-operative in obtaining the visas for Japan and Republic of Korea, fellowship and APSS-APPOS joint meeting host countries respectively.

I travelled from Kathmandu to Nagoya, Japan on March 13 and Dr. Ushirozako from the Orthopaedic department was very kind to pick me up from Nagoya airport. My accommodation was within the University premises which was very close to the orthopaedic department. I was privileged to receive utmost care from all members of the department who made sure that I was very comfortable throughout my stay at Hamamatsu University School of Medicine.

### **Hamamatsu University School of Medicine**



Fig 1: Hamamatsu University School of Medicine

Hamamatsu University School of Medicine is a national university and 613 bedded teaching hospital situated in Hamamatsu, Shizuoka Prefecture in Japan. The Orthopedic department has well-established subspecialties including Spine Surgery, Arthroplasty, Pediatric Orthopedics, Hand Surgery and Musculoskeletal Tumor Surgery. There are a number of national and international graduate students taking part in the Ph.D. programme.

There are 12 Spine surgeons in the Spine team and apart from the University hospital they perform spinal surgeries in number of other satellite hospitals also. Usually they undertake simpler surgeries in the satellite hospitals and more complex ones or on patients with significant comorbidities in the University Hospital where they performed 319 Spine Surgeries in 2018.

### **Activities at Hamamatsu University School of Medicine**

The Orthopaedic department meet in the morning conference every Tuesday and Thursday. I attended the morning orthopaedic conference which consisted of University medical students, graduate students, orthopaedic and spine surgeons on Thursday March 14<sup>th</sup> and I was very grateful for the warm welcome I was given. A number of interesting cases relating not only to Spine but orthopaedic trauma, arthroplasty, hand surgery, pediatric orthopaedics and orthopaedic oncology, were discussed.

The same evening I joined in an Orthopaedic meeting at where orthopaedic surgeons practicing outside the University Hospital also participated.

We were joined by Dr Marek Holy, a spine surgeon from Orebro University Hospital in Sweden on Monday March 18<sup>th</sup> and he presented some interesting spine cases from his hospital. Then Dr Arima, Spine surgeon at Hamamatsu University Hospital presented a journal report on Proximal Junctional Failure in adult deformities. Dr Yamato then showed us number of interesting cases performed by the Spine team previously. I was highly impressed by the complex deformity and tumor cases operated by the Spine team.



Fig 2: Spine Team at Hamamatsu University School of Medicine

After Spine clinics on Mondays the spine team assemble again in the evening to discuss the surgical cases posted the next day as well as to formulate a treatment plan for some interesting and complicated cases they had attended in the clinics.



Fig 3: Evening Spine Conference

Similarly after surgery on Tuesdays the Orthopaedic department meet in the evening for a post-operative conference. On March 19<sup>th</sup> after Spine Surgeries we attended a guest lecture by Professor Murakami from Kanazawa University Graduate School of Medical Sciences where he discussed Total en

Bloc Spondylectomy for vertebral tumors and metastases. He demonstrated number of challenging neoplastic cases they had managed and his talk was very inspiring.

I had the chance to attend the 7<sup>th</sup> International Spine Symposium of 4 Universities organized by Keio University in Tokyo on March 30. The symposium was very impressive and I also had the opportunity to meet other APSS travelling fellows who were hosted by the Keio University.



Fig 4: Spine Symposium at Keio University

### Spine Surgery at Hamamatsu University School of Medicine

The Spine surgeons in Hamamatsu University School of Medicine operate in wide variety of Spinal pathologies including trauma, adult deformities, scoliosis, spine degenerative conditions, spine tumor as well as extra and intramedullary tumors. The Operation theater complex consisted of 10 modern fully equipped operating rooms. On Tuesday March 19th after preoperative morning conference I joined Dr Yamato and Dr Arima for a Posterior correction and fusion surgery for Adolescent Idiopathic Scoliosis.

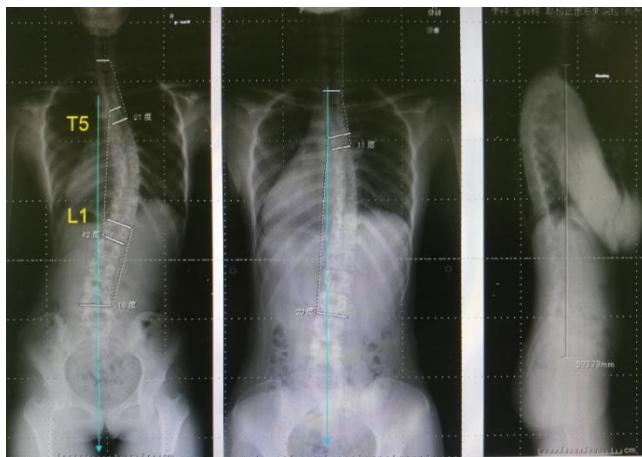


Fig 5: AIS Lenke 1A

They use either CT or O arm navigation to identify pedicles in such cases where pedicle identification and trajectory can be difficult due to the deformity. They operate under neuromonitoring in such cases to prevent adverse neurological events as far as possible.

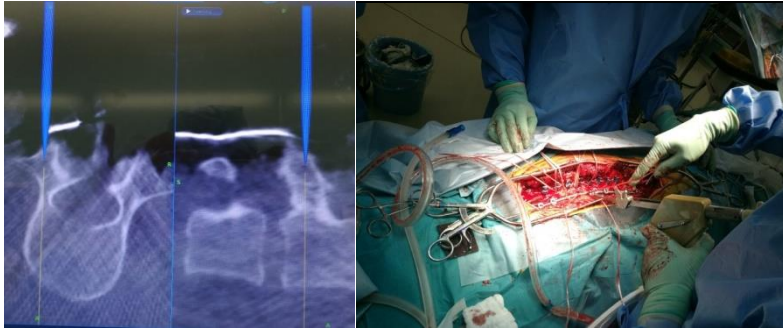


Fig 6: Use of O arm navigation (left) and sublaminar tapes(right)

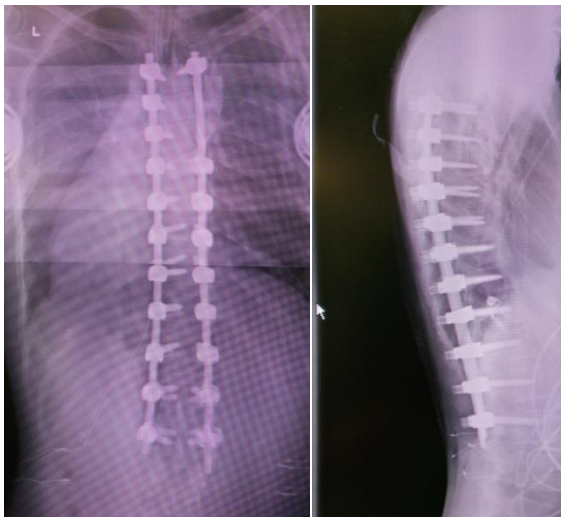


Fig 7: Final Correction of AIS patient shown in Fig 5



I also had the chance to assist in a case of adult deformity which occurred in an elderly male patient due to late collapse of a L2 vertebral fracture leading to kyphosis and canal stenosis.

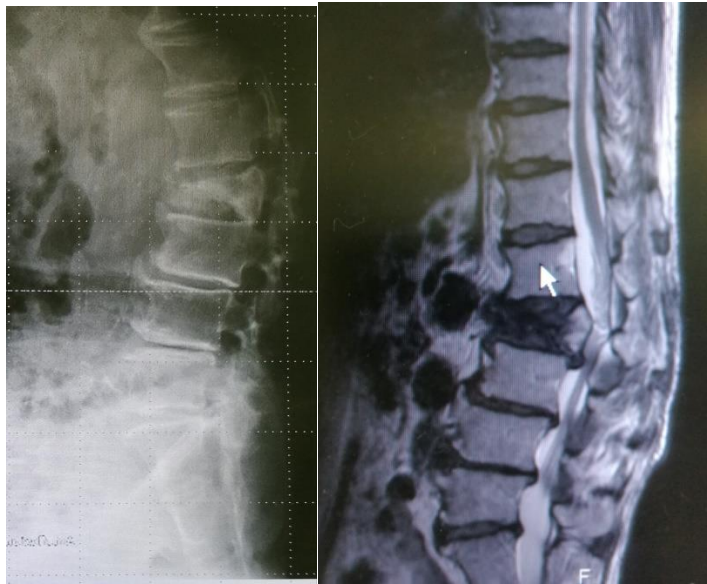


Fig 8: Lateral X-ray and Sagittal T2 MRI of late collapse of L2 vertebra

Initially posterior decompression and pedicle screw and laminar hook insertion was done followed by anterior column reconstruction with expandable cage by retroperitoneal approach in the same operative setting.

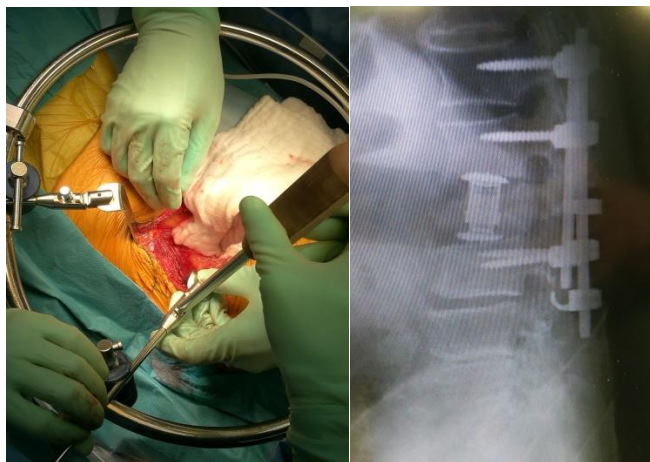


Fig 9: Retroperitoneal approach (left) and final lateral Xray (right)

The Spine team at Hamamatsu University operate also on intradural extramedullary and intramedullary Spine tumors which was quite new to me. I observed one such case where the surgeons after very careful exposure used intraoperative ultrasound to localize the lesion and in this case an incisional biopsy was done. The lesion was later diagnosed by histopathology to be metastasis due to

adenocarcinoma of lung. Similarly I also observed the surgery of another patient with intramedullary mass suspected to be due to sarcoidosis.

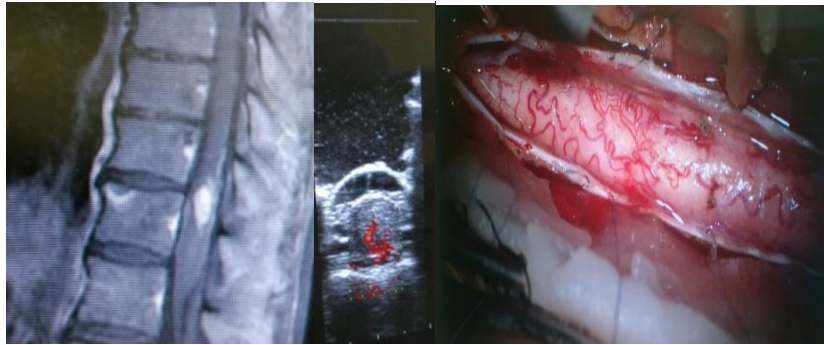


Fig 10: Contrast sagittal MRI (left), Intraoperative Ultrasound (Centre) and Intradural Exposure (Right) of intramedullary mass

### Activities at Satellite Hospitals

Spine surgeons from Hamamatsu University School of Medicine also attend a number of satellite hospitals where they see Spine patients as well as perform surgeries. I visited Red Cross Hospital with Dr Hasegawa on few occasions.



Fig 11: With Dr Hasegawa at Red Cross Hospital



I assisted Dr Hasegawa and Dr Ushirozako for a double level Transforaminal Lumbar Interbody Fusion (TLIF) for a patient with degenerative Spondylolisthesis and Lumbar canal Stenosis.



Fig 12: Preoperative sagittal CT (left) and post TLIF and posterior Instrumentation lateral x-ray (right) of two level degenerative Spondylolisthesis

Similarly on March 29, I assisted him for another case of Transforaminal Lumbar Interbody Fusion (TLIF) for Isthmic Spondylolisthesis of L5-S1.

I completed my fellowship in Hamamatsu University School of Medicine on April 2. I was presented with fellowship certificate and given a farewell dinner the same evening.

As part of my fellowship I travelled to Incheon, Republic of Korea on April 3<sup>rd</sup> and attended APSS-APPOS 2019, Joint Congress of Asia Pacific Spine Society and Asia Pacific Pediatric Orthopaedic Society from April 4<sup>th</sup> to April 6<sup>th</sup> 2019. On 5<sup>th</sup> April I presented my fellowship experience in the Fellowship Session. The experience at the meeting was wonderful and I also met and interacted with different participants from various countries.



Summarizing my fellowship, it was a valuable learning experience for a beginner in Spine Surgery like me. The hosts were very welcoming and put a lot of effort to make sure that my stay was comfortable. The schedule was designed very effectively by my hosts so that I could gain maximum benefits from a short fellowship period of 3 weeks. They encouraged me to scrub in and assist as much surgical cases as possible. The APPS-APPOS joint congress was a grand event and presenting my fellowship experience was very satisfying.

## LOGBOOK

Date	Age	Sex	Diagnosis	Surgery	Surgeons	Hospital	Remarks
14/3	58	F	Ehler Danlos Syndrome with B/L Sacroiliac Joint Arthritis with Failed Right Iliosacral fusion	Iliosacral Screw removal and revision with Iliolumbar fusion L5-Ilium	Dr Yoshida, Dr Oe	HUSM	Assisted
19/3	17	F	Adolescent Idiopathic Scoliosis Lenke 1A	Posterior Instrumentation and Fusion T4-L2	Dr Yamato, Dr Arima	HUSM	Assisted
19/3	15	F	Adolescent Idiopathic Scoliosis Lenke 1A	Posterior Instrumentation and Fusion T5-L1	Dr Banno, Dr Yoshida	HUSM	Observed
19/3	71	M	Intradural Intramedullary tumor(?Metastatic)	Open Biopsy	Dr Yamato, Dr Arima	HUSM	Observed
22/3	79	M	Degenerative Spondylolisthesis L3-4, L4-5	Transforaminal Lumbar Interbody Fusion L3-4, L4-5	Dr Hasegawa, Dr Ushirozako	Red Cross Hospital	Assisted
25/3	17	F	Adolescent Idiopathic Scoliosis Lenke type 1 B	Posterior Instrumentation Correction and Fusion	Dr Yoshida, Dr Oe	HUSM	Assisted
26/3	71	M	Kyphotic deformity with canal stenosis after late collapse of L2 Vertebral fracture	Anterior column restoration and posterior decompression and fusion	Dr Yoshida, Dr Yasuda	HUSM	Assisted
26/3	79	F	Cervical Myelopathy	French door Laminoplasty C3-C7	Dr Arima, Dr Oe	HUSM	Observed
26/3	61	M	Segmental Instability L2-3 , L3-4 with Degenerative disc disease	Transforaminal Lumbar Interbody Fusion L2-3, L3-4	Dr Banno, Dr Yasuda	HUSM	Assisted

## LOGBOOK

Date	Age	Sex	Diagnosis	Surgery	Surgeons	Hospital	Remarks
28/3	24	F	Adult Idiopathic Scoliosis Lenke 1C	Posterior Corrective Fusion T4-L4	Dr Yamato, Dr Arima	HUSM	Assisted
28/3	43	M	Intramedullary Mass Lesion (?Sarcoidosis)	Incisional Biopsy	Dr Matsuyama , Dr Hasegawa, Dr Banno	HUSM	Observed
29/3	54	M	Isthmic Spondylolisthesis L5-S1	Transforaminal Lumbar Interbody Fusion (TLIF) L4-5, L5-S1	Dr Hasegawa, Dr Ushirozako,	Red Cross Hospital	Assisted
2/4	43	M	Spinal cord herniation (post dural repair and instrumentation)	Exploration and adhesiolysis	Prof Matsuyama ,Dr Yamato, Dr Oe	HUSM	Observed
2/4	74	M	Cervical Myelopathy (Post Laminoplasty C3-C7) with kyphotic deformity	Posterior Instrumentation C2-C7 and Anterior Corpectomy C4,C5 and Fusion with Tricortical Iliac Crest Bone Graft	Dr Hasegawa, Dr Yoshida, Dr Banno	HUSM	Assisted
2/4	85	F	Cervical Myelopathy C3-C4	Laminectomy C3,C4 and Posterior Instrumented Fusion with Lateral Mass Screws C3-4	Dr Arima, Dr Yasuda	HUSM	Assisted
2/4	69	F	Lytic Lesion C2 (? Metastatic, ?Chordoma)	Incisional Biopsy	Dr Banno	HUSM	Observed

## **Acknowledgements**

1. APSS Fellowship Committee
2. Professor Yukihiro Matsuyama and Department of Orthopaedics, Hamamatsu University School of Medicine
3. Jenny Wong, Maxime Lemaire and APSS Secretariat
4. Ms Hiromi Otowa and Orthopaedic Secretariat at Hamamatsu University School of Medicine
5. Dr Hiroki Ushirozako, Hamamatsu University School of Medicine
6. APSS-APPOS 2019 Organizing Secretariat