

**Report for the APSS - Depuy Synthes Spine Travelling Fellowship 2013**

*Fellow:* **Dr Masatoshi Teraguchi, MD**

Department of Orthopaedics in Wakayama Medical University

***First Destination***

*Guide:* **Prof Keith Luk Dip Kei**

Department of Orthopaedics and Traumatology, The University of Hong King, Queen Mary Hospital

*Duration:* 10<sup>th</sup> – 17<sup>th</sup> November 2013

*Centre's visited:* Queen Mary Hospital and The Duchess of Kent Children's Hospital

11/10 Transport from Osaka to Hong Kong



*They are a member of Group 2.*

*Left: Masatoshi Teraguchi from Japan*

*Center: Sanjay Yadav from India*

*Right: Raymond Suen from Hong Kong*

11/11

**AM** Prof Luk has an outpatient scoliosis clinic. We can look at many AIS (Adolescent Idiopathic Scoliosis) cases, so that we learned about the adaptation of brace for pre mature

case. There is screening program in Hong Kong by primary public doctor in terms of ATR. In addition, we learned a couple of AIS, for example looking at family hx, bone age, menarche, growth rate, assess compliance, importance of tension of brace.

**PM** Dr Wong did discogram for L4/5 rt herniation in prone position in the operation room.



*Above: The Duchess of Kent Children's Hospital*

*Below: Queen Mary Hospital*

11/12

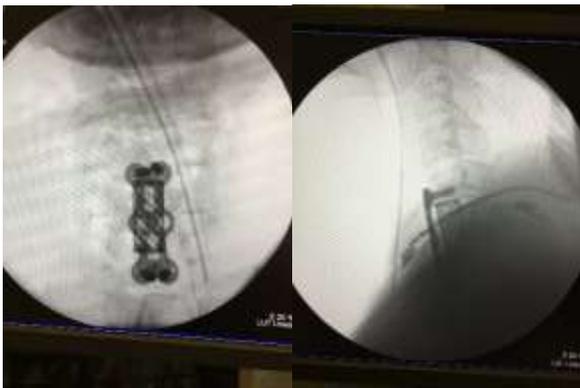
**AM** EOS (Early onset scoliosis) seminar by Prof Luk and Prof Kenneth Cheung. I learned about the natural history of congenital scoliosis and also EOS. I felt that magnetic growing rod system was very impressive and effective tool, however it was problem to be expensive.



*This is one case of using magnetic growing rod system.*

**PM** C6 corpectomy by Prof Luk for C5/6 and C6/7 cervical myelopathy by 2 level bulged disc.

In Japan, anterior approach is rare so that I was interested in ACDF (Anterior cervical discectomy and fusion) or corpectomy. Further, it is better for cervical disc herniation or beak type OPLL (Ossification of the Posterior Longitudinal Ligament).



*Post operation of corpectomy at C6.*

**11/13**

**AM** Ward round; We looked at approximately 10 cases, which are post laminoplasty for cervical myelopathy, halo-tracking for polio, and sedimentation sign (this is nerve root gathering above midline on axial image by entrapment of LSS), and Kokubun operation. We joined at case conference which was discussed about pediatric club foot and scoliosis.

**PM** Dr Wong's adult patient outclinic patient.

We looked at 10 patients which were cervical myelopathy, polio, drop foot after TLIF for LSS because he has hematoma. We discussed about spondylosis and hip OA. Which is first to perform operation and double crush of cervical myelopathy and LSS.

**11/14**

**AM-PM** We looked at magnetic growing rod (first case is primary case and second case is infection case which is removed and washed). After operation Prof Kenneth Cheung took us dinner, we have discussion with every traveling fellow. I was impressed the talking about young Prof's traveling.

**11/15**

**AM** Ward round in QMH, we looked at the severe case which has metastatic lumbar region, and cervical myelopathy.

**PM** We have each presentation which my presentation was "prevalence and distribution of disc degeneration over the entire spine; The Wakayama Spine Study." Prof Kenneth Cheung asked me what kind of coil for cervical. However he was very impressed my research, he wanted coraboration with our cohort.



## ***Second Destination***

**Guide: Prof Chen Wen-Jer**

Linkou Chang Gung Memorial Hospital

**Duration: 17<sup>th</sup> – 24<sup>th</sup> November 2013**

**Centre's visited:** Linkou Chang Gung Memorial Hospital



*Chung Gung hospitals has 40 Orthopaedic surgeons and 25 residences, more than 80 operation rooms and 10 Orthopaedic rooms. Furthermore this hospital has 2 branch hospitals.*

**11/18 AM-PM**

From 7 am the conference started, after many doctors went to the branch hospitals for their operations. We watched 5 operations which had 2 disc herniation cases, 2 spondylithetesis cases and 1 revision case. For disc herniation, Prof Chen performed hemilaminectomy and disectomy. Next operation was L4/5 spondylithetesis, he performed TLIF (Transforaminal lumbar interbody fusion).

**11/19**

They had approximately 10 spine cases, almost cases were spondylithetesis and degenerative scoliosis. These cases were also performed TLIF

or PLF. Preoperation examination were physical examination, Xp and MRI, sometimes selective nerve root block. I think the difference of indication about posterior fusion between my Wakayama university and Linkou Chang Gung. Because in my opinion spondylithetesis was not needed posterior fusion if they has no instability. Moreover many doctors asked me the reason why Japanese spine surgeon liked posterior approach than anterior approach for cervical and lumbar decompression. They mentioned anterior approach was better than posterior because posterior approach had some limitations of postoperative axial neck pain etc. I also understood it.



*This case is L4/5 spondylithetesis, which was TLIF using dynamic hybrid rod system.*

For dinner we went to ginger duck which is traditional Taiwan foods with discussion about difference of medical system and doctors income and insuresnce. I was interested in differences.



**11/20**

We watched 2 ACDF cases. First case was C4/5,5/6 spondylosis. I asked Dr Lui whether anterior or posterior approach was better. He answered both approaches was same, however anterior approach was this hospital policy. Second case was C5/6 radiculopathy. He also ACDF with smith Robinson approach.



*Second case was ACDF for C5/6 radiculopathy.*

After operations we went to dinner with Linkou hospital doctors which were in spine section. We went to Arzentina steak restraints and we had a good time because we had many discussion about difference between Japan and each country of cultures, orthopedics, and operations.

**11/21**

We attended at the spine case conferences which were discussed about 8 cases ( infection cases, revision cases, TLIF et al). I asked what was concervative treatment. So that this is medication and physical treatment, however it means including epidural block and nerve block because it improves symptoms.

Dr Wu taught us cervical anterior approach did not cause axial neck pain after operation, so that they use it. ACDF put the peek cage in the disc without plate until 2 levels however put it more than 3 levels. Inside cage they used allo grafts.

I also discussed with Intern residents, she goes around many department for 1 year. However

she can stay for 2 weeks. This is little difference with Japan.

**11/22**

I understand the insururance of medicine in Taiwan which is depend on governments. The system is 10% abundant by patient, however there are many discharge such as limitation of using cage and medicine. We looked at 4 balloon kyphoplasty cases and metastatic case of osteosarcoma.



*4 balloon kyphoplasty cases*

**11/23**

We went to sightseeing to Tansui and Sinpeitou in north of Taipei city. Tansui was so beautiful seacoast town, and Sinpeitou was hot spring town made by Japanese. Finally, Dr Liu came to meet us in departure morning. We had good friends.

***Final Destination***

*Guide: Prof Shekar Y Bhojraj*

Lilavati Hospital and MRC and Breach Candy Hospital

*Duration: 24<sup>th</sup> – 30<sup>th</sup> November 2013*

*Centre's visited: Lilavati Hospital and MRC and Breach Candy Hospital*



*Lilavati Hospital is private hospitals. they has 80% lumbar degenerative disease 20% cervical.*

**11/25** in Lilivant hospital

At OPD 5 cases new patients lumbar L5/S1 spondylolisthesis, who was performed posterior fusion without cage. Second case was 14 year patient who has L4/5 disc herniation. She will be performed discectomy with fixation. Prof Bhojraj checked the whole spine MRI because many cases has tandem stenosis. Third case was 72 year patient, had low back pain and L4/5 spondylolisthesis, who were performed by one level fixation. Almost all patient are rich. After ward round we went to satellite hospitals which was built by spine foundations, at OPD this

hospital had many deformity patients, because they had not enough treatments.

From evening we looked at L2-S1 lumbar spinal stenosis, which was treated L2-S1 laminectomy and discectomy for one hour. I surprised at the difference of indication about the level of decompression. After work we went to dinner with doct in spine section at Natinal sports club, we had too much Indian food such as carry, that was so nice.



*With Dr Sanjay, in Lilavati operation room*

**11/26 in Livant hospitals**

We looked at 3 cases operations, L4/5 spondylolisthesis was performed PLF with discectomy and T8/9, 9/10 and L4/5 multilevel stenosis was T8 - L5 laminectomy. I was surprised at the indication of this operation. However Prof Bhojaraj think whether the selective decompression was high risk of recurrence. After operations we had Prof's lecture about cervical myelopathy, posterior fusion and tuberculosis (TB). Cervical myelopathy was often chosen ACDF or laminectomy. Furhtermore I was interested in TB cases because I have never seen TB cases. After this lecture we went satellite hospital, we had good discussion about case reports with many spine

fellows. I also talk about my opinions of kyphosis cases, AIS case and tumor cases. Finally we went to dinner with fellows, I got many information about fellowship and difference among country with eating good Indian foods.



*With Indian Fellows, we had much indian foods.*

#### **11/27 in Hinduja hospital**

We looked at T9 and T10 TB case, which was performed posterior fusion at first and anterior decompression and remove abcess around vertebra. This was first case to see TB cases so that I am happy to see it. Because TB is rare in Japan. After operation, we went to sightseeing in the gate of India, Targe Hotel and marine drive. That was so beautiful and exotics, I had a good experience. Furthermore I ride on train for south Mumbai, whose door was every time open. Finally we had a good Indian dinner in sports club with Prof and all doctor and UK doctors.



*T9 and T10 TB case, which was performed posterior fusion at first and anterior decompression and remove abcess around vertebra*

#### **11/28**

##### **A charitable advanced deformity live surgery seminar day 1 .**

The first case was T8/9 kyphosis after tuberculosis, which was performed pedicle subtraction osteotomy (PSO). It is first time to see. It is interest for me to see rare cases After 1st cases, we were given the lecture about AIS and EOS. The lecture was easy to understand for me. Second case was 13 year old adolescent scoliosis, which was posterior derotation and fixation using pedicel screw.

11/29

**A charitable advanced deformity live surgery seminar day 2.**

This was final day, I watched the case with kyphoscoliosis. This case was so interested, because I have never seen the case like that. this case was performed posterior correction with ponte osteotomy. Furthermore I was lectured about neuromonitoring by Dr Helen from UK. In my university neuromonitoring is usually used, so the lecture was easily understood for me.

In my regret this traveling fellowship was finished at Mumbai.

I was happy that I traveled with Dr Raymond and Dy Sanjay, furthermore I met good friends in Hong Kong, Taipei and Mumbai. This experience will be my property in my future.



### Log book APOA-APSS Travelling Fellowship-2013

Case No.	Age (Y)	Sex	Diagnosis	Surgery	Remarks
1	42	F	L5 radiculopathy right	Nerve root block	-
2	10	M	Congenital dorsolumbar scoliosis	Magnetic Growing rod application (MAGEC)	Soto syndrome
3	9	F	Early onset dorsal scoliosis with growth rod in-situ	Revision growth rod application	Found infected. Implant removal and wound lavage
4	45	F	Cervical disc disease; C5-C6	ACDF	Stand-alone iliac crest graft (Kokobun technique)
5	52	M	Cervical disc disease; C5-C6, C6-C7	C5 corpectomy and anterior cervical plating	Meshed titanium cage with bone graft
6	48	M	Lumbar Spondylolisthesis- one level	L5-S1 posterior instrumentation	TLIF with PEEK cage
7	54	F	Degenerative spondyloarthropathy- lumbar spine	L3-L4, L4-L5 posterior instrumentation and fusion	PEEK cage
8	57	M	Lumbar spondylolisthesis- L4-L5, L5-S1	Two level fixation with posterior instrumentation	TLIF with PEEK cage
9	46	M	Degenerative disc disease	Open discectomy	Lumbar spine, L4-L5
10	49	F	Adjacent segment degeneration with L4-L5 fixation implant in situ	Extention of instrumentation to L3 and L2 with DTO (Zimmer)	Dynamic fixation concept
11	38	M	Cervical degenerative disease C5-C6	ACDF- one level	Stand alone PEEK cage
12	53	F	Cervical degenerative disease C4-C5, C5-C6	ACDF- two level	Stand alone PEEK cage
13	50	M	Degenerative disc disease with canal stenosis, L3-L4-L5	Posterior decompression and instrumentation	DTO (Dynesys Transition Optima)
14	67	F	Lumbar degenerative scoliosis	Posterior instrumentation, L2-L5	PEEK cage
15	69	F	Cervical spondylosis with compression, C6-C7	C6/C7- ACDF	PEEK cage
16	43	M	Left L4 radiculopathy	L4 nerve root block	-
17	69	F	Degenerative lumbar disease with lumbar kyphosis	Decompression and posterior instrumentation	2 level Ponte osteotomy
18	51	M	Cervical degenerative disease	ACDF with	PEEK cages- three level
19	49	M	L3-L4 radiculopathy	L3-L4 nerve root block	-

Case No.	Age (Y)	Sex	Diagnosis	Surgery	Remarks
20	72	F	Lumbar canal stenosis	Decompression, posterior instrumentation and fusion	PEEK cage
21	68	F	Degenerative spondyloarthropathy, L2-S1	L2-S1 decompression and fusion	PEEK cage
22	57	M	Lumbar degenerative kyphosis	Spinal osteotomy with posterior instrumentation	Multiple level Ponte osteotomy
23	63	F	Degenerative spondyloarthropathy	Posterior instrumentation and fusion	PEEK cage
	36		Disc prolapsed, lumbar	Lumbar discectomy	Open method
24	56	F	Spondylolisthesis- lumbar	Posterior instrumentation, reduction and fusion, L5-S1	PEEK cage
25	72	F	Vertebral collapse, D12	Kyphoplasty- D12	Balloon kyphoplasty
26	74	F	Vertebral collapse, L2-L3	Kyphoplasty- L2,L3	Balloon kyphoplasty
27	69	M	Lumbar canal stenosis	Posterior decompression and instrumentation--L2-L5	PEEK cage
28	32	M	Prolapsed Intervertebral Disc	Discectomy	Open method
29	60	M	Lumbar degenerative spondylosis	Lumbar decompression and medial partial facetectomy	No fixation
30	58	F	Degenerative disc disease, L4/L5	Lumbar decompression and instrumentation	No fixation
31	67	M	Degenerative lumbar spondyloarthropathy, L5-S1	Posterior instrumentation and decompression	PEEK cage
32	59	F	Multisegmental thoracolumbar degenerative disease	Posterior Decompression	No fixation
33	32	F	Tuberculosis spine D8-D9 with paravertebral abscess- D7-D10.	Posterior pedicle screw fixation followed by anterior decompression and cage fixation	Combined anterior and posterior approach
34	16	M	Post-tuberculosis sequelae with D8/D9 kyphosis with myelomalacia	Posterior instrumentation and pedicle subtraction osteotomy	Neuromonitoring
35	17	F	Adolescent idiopathic scoliosis	Posterior instrumentation from D3 to L2	MRI- double cords Neuromonitoring
36	16	F	Neuromuscular scoliosis	Posterior instrumentation and multiple Ponte osteotomy	Instrumentation levels were from D3 to L5