

Report for the APSS Depuy Synthes Spine Clinical Fellowship 2017

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Mentor: Dr. Kuniyoshi Abumi, MD, Ph.D

1. Current President of APSS
2. Director of Sapporo Orthopaedic Hospital-Center for Spinal Disorders
3. Professor Emeritus, Hokkaido University

Duration: 30 Aug - 20 Sep 2017

Centre's visited:

- (1) Sapporo Orthopaedic Hospital-Center for Spinal Disorders & affiliated hospitals
- (2) Hokkaido Orthopaedic Memorial Hospital, Sapporo
- (3) Eniwa Hospital, Eniwa
- (4) Spinal Cord Injury Centre, Hokkaido Chuo Rosai Hospital, Bibai.
- (5) Hokkaido University Hospital, Sapporo
- (6) National Hospital Organization Hokkaido Medical Center, Sapporo

I can not believe how lucky I am to receive this fellowship at the 2nd year being an orthopaedic surgeon. The precious opportunity to assist operations performed by Professor Abumi who is world-famous and legendary.

I landed on 30th August via a direct flight from Taipei and checked in Hotel Yamachi Sapporo. It is at subway station Kotoni (20m) and JR Kotoni(5min) which is a huge plus due to the convenience. I really appreciate Professor Abumi's thoughtful arrangement. My fellowship course had started from 31st August.

Week 1 (31th Aug – 3rd Sep)

31th Sep (Thu)

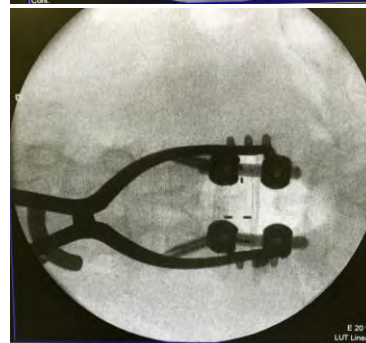
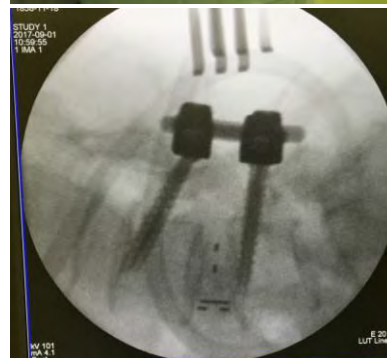
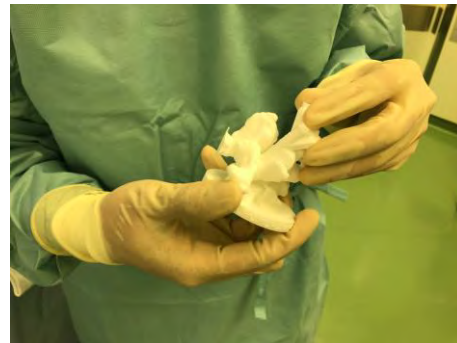
On the first day, I went to Sapporo Memorial Hospital(Private and Modern), a east-southern station from Sapporo, 20 minute subway distance. My first case in Hokkaido was a 65-year-old female, diagnosed of L4/5 instrumented PLF, L3/4 pseudarthrosis and Spinal stenosis. Dr. Oda did L3-4 medial facetectomy + instrumented PLF. It's a common practice to use osteotome for most of the decompression and is considered safer

than Kerrison punch at stenotic lateral recesses.

The second case was a 73-year-old male with C3-6 stenosis. Dr. Takeuchi perform C3-6 Kurukawa (French door) laminoplasty with high speed burr. Japanese patients generally refuse allograft from bone bank due to cultural reason; therefore, spacers made of artificial bone were used.

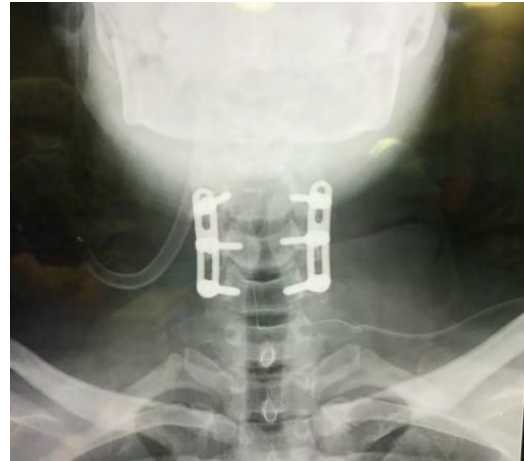
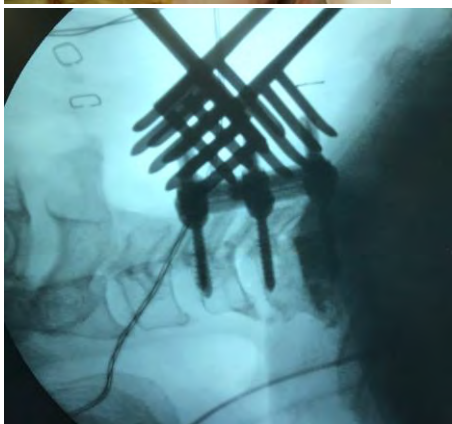
1st Sep (Fri)

Eniwa Hospital is a private hospital on Southeast side of Sapporo of 30 minutes train (JR) ride. Dr. Abe was conducting a 3D printed surgical guide trial using swiss company Edacta developed product. It was very impressive to combined two hot technique: CBT and 3D printed technique. The surgical guide fit quite well and the results was satisfactory.



In the afternoon, I took a train and 15 minutes walk to Sapporo Orthopedic Hospital in Hassamu. Professor Abumi demonstrate his legendary cervical pedicle screw insertion

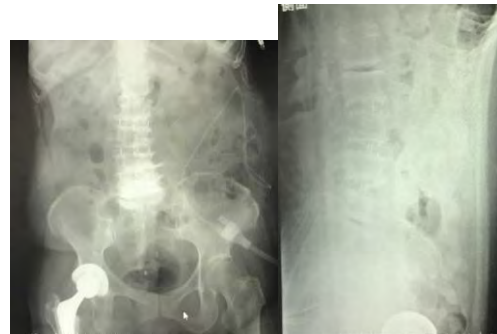
technique with ease under only lateral fluoroscopic guidance. C3-6 laminectomy was done after Kurokawa laminoplasty and C3-6 instrumented fusion was totally under 1 hour (skin to skin). I was so touched and enlightened like I was never been!



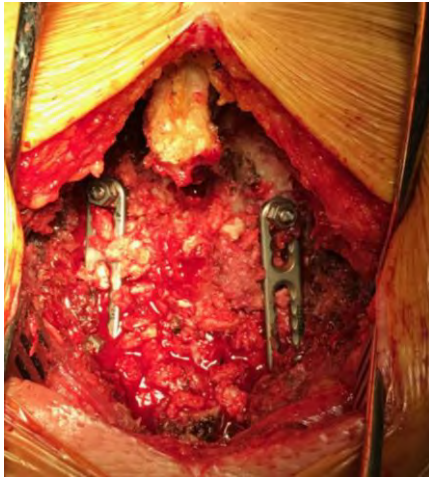
Week 2 (4th Sep - 10th Sep)

4th Sep (Mon)

Starting with 3 level OLIF for degenerative scoliosis for this week was very exciting. Dr. Abe performed OLIF as the first stage and followed by posterior instrumentation next week. The instruments were designed well and the operation was smooth.



In the afternoon, after an open lumbar surgery. Prof Abumi demonstrated his technique of cervical foraminotomy with osteotome and high speed burr. Again, without extra move, three foraminotomy and 3 level instrumented fusion were done within 2 hours. What was worth mentioning was C7 pedicle screws were inserted without any fluoroscopic guidance due to blockage of image by patient's shoulder.



5th Sep (Tue)

After a lumbar surgery in Sapporo Memorial Hospital, I went to prof Abumi's hospital. Professor Abumi demonstrated lumbar CBT technique upon my request. Fluoroscopic localization of lateral view was the main guiding method. As for medial and lateral, since it's open surgery and there was no difficulties to locate where pedicles were. Good purchase of the CBT screws were felt.



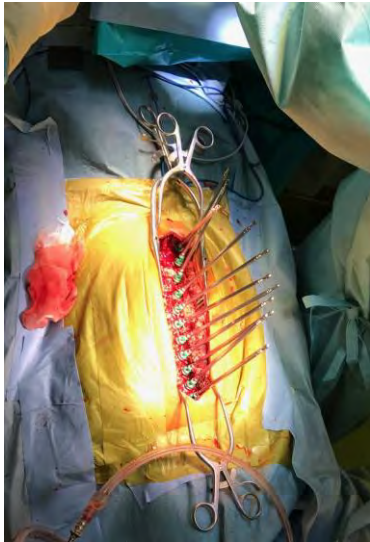
6th Sep (Wed)

Bibai was more than one hour drive from Sapporo and was pretty rural. Dr. Sato performed two open lumbar surgeries. It was surprising in Japan, surgeon can not earn any percentage from surgeries but only fixed monthly salaries. Surgeries were considered to be "Voluntary".



7th Sep (Thu)

Dr. Abe performed an AIS case which was not very different from what we did in Taiwan. Intraoperative monitoring of SSEP and MEP were used and no wake up test was performed. Continuous fluoroscopic survey was very common in Japanese practice and nearly everyone wear only lead protection for groin only. I would suggested APSS fellow bring their own neck protection and lead lenses because most of the hospitals were not equipped with these equipments.



8th Sep (Fri)

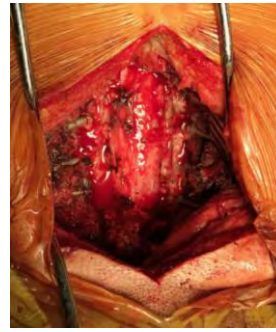
After a open lumbar surgery, Dr. Oda performed a cervical foraminotomy surgery. He mentioned that some of his colleagues in Wakayama use MED (microendoscopic discectomy) instruments to perform the same surgery. (Minimally invasive surgery was not a common practice in Hokkaido, the incision was more than 12 cm for 2 levels lumbar surgery. Tubular retractors were rarely used and was reserved for decompression only procedure.) This was an inspiration for me, as I intend to do it with PECD (Percutaneous endoscopic cervical decompression) in the future.

Week 3 (11th-17th Sep)

11th Sep (Mon)

It was very exciting to start the week with professor Abumi's cervical pedicle screws. It's the third time I saw him doing it. Professor explained how he localize entry point and the trajectories of every level. He also shared all

seven incidence of vertebral artery injuries and how he manage them.



12th Sep (Tue)

Today I joint the morning meetings at Hokkaido University Hospital. It was a very in-depth academic discussion. All the patients in the ward, past surgeries and future surgeries were discussed. Four attendings and 6 residents attended. They were all very kind to explained to me what I can't understand from the slides.



I observed a case of percutaneous screw insertion with midline open decompression. It might be a transitional stage to miniTLIF but I did not confirm this with the surgeon.

In the afternoon, professor Abumi perform a standard ACDF (anterior cervical discectomy and fusion) surgery. Precise approach and minimally blood lost was as I expected.

12th Sep (Wed)

Professor Abumii explained how medial facetectomy was done with a chisel (not an osteotome) thoroughly.



14th Sep (Thu)

Today I got to see O-C2 fusion for os odontoid with instability and myelopathy in Hokkaido University Hospital by professor Takahata.



Intraoperative neuromonitoring and immediate postoperative CT in the OR was the progress after professor Abumi taught everyone about cervical screw insertion but the basic principles were the same. I would think that should be the basic equipments for beginners to start inserting cervical pedicle screws.

In the afternoon, I visited Hokkaido medical center. Professor Ito was performing total laminectomy and intradural hematoma evacuation for a rare case of intradural bleeding during abdominal aneurysm surgery by cardiovascular surgeons. Professor Ito emphasize the importance of neuromonitoring in such case; however, this case results in paraplegia after probably because cardiovascular surgeons did not use intraoperative neuromonitoring.



The next case was a L1 burst fracture with posterior element disruption case. This young female received immediate posterior short segment instrumentation of T12-L2 2 weeks ago and this time partial fracture removal with expandable cage insertion was done through lateral approach with diaphragmatic take down. Professor Ito explained to the finest details of every steps of surgery and demonstrated to the highest levels of exceptional consideration every surgeries should have.



15th Sep (Fri)

Today was professor Abumi's full demonstration of anterior and posterior combined single stage surgery. (posterior done first)

It was a perfect ending for my fellowship. Although it was not the last day, but it was absolutely amazing to see demonstration by one of the 10 most influential mast in cervical spine surgery field of his mastery.

Week 4 (18th-20th Sep)

19th Sep (Tue)

Today I joint the morning meeting in Hokkaido University Hospital again and it was as good as last time.

Afterwards, I joint my first OPLL case in this fellowship (I thought I would see a lot more).

It was managed with laminoplasty with muscle preserving approach which was a specialty here. I would love to see floating technique next time.



In the afternoon, after a lumbar surgery, I said temporary farewell to professor Abumi.



20th Sep (Wed)

I visited professor Ito's office before his outpatient clinic. He discussed me briefly but stressed it very much about medical documentation. I appreciated it very much. This was the end of my memorable and wonderful fellowship Sapporo part.



My three week of stay in Hokkaido was perfectly satisfying. It my great honor to join the operation from Professor Abumi and spine surgeons from Hokkaido University Hospital and its affiliated hospitals, one of most famous and talented spine team around the world especially in cervical spine field. As a visiting spine fellow, what I got was not only surgical knowledge and techniques but also friendship between me, fellows from other countries and surgeons here. It was impossible to fully express my gratitude and appreciation for Professor Abumi for everything he had done to organize and orchestrate this unbelievable program. Finally I want to thank APSS and committee to give me this precious opportunity. It was a turning point of my career.

Fellowship Logbook

date	day	age	sex	Diagnosis	Procedure	Surgeon	My role	Hospital
31-Aug	Thu	65	F	L4/5 iPLF, L3/4 pseudoarthrosis + Spinal stenosis	L3-4 MF + iPLF	Oda, Oshima	Observer	Memorial
		73	M	C3-6 stenosis	C3-6 Laminoplasty	Takeuchi	Assistant	Memorial
1-Sep	Fri	75	F	L4/5 stenosis	L4/5 CBT (3D printed guide)+TLIF	Abe	Observer	Eniwa
		80	F	C5/6 ACDF, C4-6 stenosis	C4-6 laminectomy + iPLF(pedicle screw)	Abumi	Assistant	SOH
4-Sep	Mon	72	F	L1-5 Degen Scoliosis w/o neurological symptoms	L3-5 OLIF (1st stage)	Abe	Observer	Eniwa
		54	F	L3-5 stenosis	L3-5 MF+iPLF	Murota	Assistant	SOH
		60	M	C5-7 ACDF, C5-7 stenosis (C56 R C67 B foraminotomy)	C56 R C67 B foraminotomy + C5-7 iPLF (Pedicle)	Abumi	Assistant	SOH
5-Sep	Tue	67	M	L4/5 lithesis + stenosis	L4/5 MF+iPLF	Oshima	Observer	Memorial
		68	F	L34 lithesis + L3-5 stenosis	L3-5 MF+L3/4 iPLF(CBT)	Abumi	Assistant	SOH
6-Sep	Wed	68	F	L3-5 stenosis	L3-5 MF+iPLF (PSIS autograft)	Suda	Observer	SIC
		70	F	L4-5 stenosis	L4-5 MF+iPLIF (PSIS autograft)	Suda	Observer	SIC
7-Sep	Thu	10	F	Lenke 1	T3-L1 iPLF	Abe	Observer	Eniwa
8-Sep	Fri	75	M	L5-S1 lithesis + stenosis	L5-S1 MF+iPLIF	Oda, Suzuki	Observer	Memorial
		50	F	C7 L HIVD	C6/7 L Foraminotomy + Hernictomy	Oda	Assistant	Memorial
11-Sep	Mon	34	M	cervical kyphosis with myelopathy	C4-6 laminectomy + iPLF(pedicle screw)	Abumi	Observer	SOH
12-Sep	Tue	76	M	LCS	MF from midline + Percutaneous lumbar screw(L3-5)	Yamada	Observer	University
		48	M	cervical radiculopathy	C6/7 ACDF	Abumi	Observer	SOH
14-Sep	thu	82	F	Os Odontoid with instability	O-C2 fusion	Takahata	Observer	University
		82	M	intradural bleeding	Thoracic MF(T12-L3)	Ito	Observer	HMC
		30	F	L1 Burst fracture with posterior element displacement	Diapram take down (expandable cage)	Ito	Observer	HMC
15-Sep	Fri	78	F	cervical kyphosis with myelopathy	C4-6 Laminectomy + iPLF (pedicle screw) and ACDF (pedicle)	Abumi	Assistant	SOH
18-Sep	Mon			National Holiday				
19-Sep	Tue	48	M	C2-5 OPLL with myelopathy	C2-6 cervical pedicle screw laminoplasty,	Yamada	Observer	University
		81	M	LCS	L3-5 MF, L3/4 PLF	Abumi	Observer	SOH