

2018 APSS-SICOT Spine Fellowship

Tetsuo Hayashi, MD, PhD

Host: Professor Cody Bünger, Department of Orthopaedic Surgery, Aarhus University Hospital, Denmark

Date of fellowship: 20th September to 10th October

1. Introduction

I am Tetsuo Hayashi from Spinal Injuries Center, Fukuoka, Japan. I have been working on spinal trauma and rehabilitation of spinal cord injury. I am grateful that APSS and SICOT arranged me to be attached to the orthopedic department of Aarhus university hospital in Denmark from 20th September to 10th October.

Fortunately, three spine fellows from another country (Dr. Prakash from Nepal, Dr. Lin from China, Dr. Sanjay from India) was learning with me during my stay. We joined surgeries and conferences together and enjoyed some parties in their dormitory. This fellowship is quite meaningful for me not only to study spine surgery, but also to make international friends.

2. Hospital

The orthopaedic department of Aarhus University, which is well-known as one of the biggest spine hospitals in Europe, is a lovely town in western Denmark. Many spine fellows from all over the world study spine surgery there. New university hospital has just completed, and I could learn spine surgery at the huge new hospital. The hospital is so huge that some staff move among wards by bicycle or scooter even in the hospital . I thought that it was real European style.

In addition, I was surprised because the medical system in Denmark is very useful. Medical information of all the people living in Denmark has been registered in a software. Checking the patient's information without permission is prohibited, however, it is very easy to share the medical information of their patients.



Aarhus University Hospital



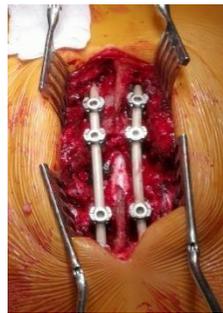
Bicycle and scooter even in the hospital

3. Operation

Two theaters were available for spine surgery. Approximately 3 to 5 operations were performed every day. Fortunately, every spine consultant took good care of me. Every international fellow could join a surgery as an assistant, who was sometimes the 1st assistant. We were very happy to play an important role in the surgery. The senior consultants were so generous that we international fellows could behave as spine surgeons. I was able to participate in 17 surgeries as an assistant during my stay in Aarhus university hospital. Although each surgery was so exciting, three cases of them were very impressive. One was a deformity surgery of hemivertebrae at S1. The senior consultant used O-arm to insert pedicle screws. Another one was spinal decompression and fusion using PEEK rod for a patient with metastatic tumor. It is said that PEEK rod can avoid reducing effect of radiation. The other one is pedicle screw fixation with cement for a osteoporotic patient. We learnt the complication of cement leakage.



Dr Kestutis and me



PEEK rod



Pedicle screw with cement

Normally patients who received surgery discharge the hospital within two or three days in Denmark. After their discharge, house nurse look after them. Differently from our country, hospitalization was very short as our patients in Japan usually hospitalize for two weeks after surgery.

4. Excursion to Neuroradiology Department and Spinal Injury Center of Western Denmark

Fortunately, Dr. Kestutis kindly arranged us to visit Neuroradiology department of Aarhus university and Spinal Injury center of western Denmark. At the neuroradiology department I could see nerve root blocks and percutaneous vertebroplasty with cement. When they performed nerve root block, they used CT scan. Therefore, they could easily watch the nerve root which they want to block.

When they performed percutaneous vertebroplasty (PVP), they didn't use general anesthesia but local anesthesia with mild sedation. Their procedure was very quick and handy by using double fluoroscopy.



A nerve root block using CT scan



The theater for PVP

In addition, I could visit the Spinal Injury Center of Western Denmark at Viborg, which is one of two spinal injury centers in Denmark. It takes one hour by car to visit there from Aarhus. Dr Kestutis kindly took us there by his car. The institute has 40 beds and accepts paralyzed patients from one month after injury. Patients can hospitalize from a month to a year for rehabilitation. They had two kinds of walk assist robots (Locomat and Ekso) for paralyzed patients. Also, they had a FES cycling and a rehabilitation robot for upper extremities.



Walk assist robot (Ekso)



Robot for hand and arm (Hocoma)

5. Presentation

Totally, I had three opportunities to make a presentation in Denmark. I introduced my country, my hospital and myself to doctors and nurses in Aarhus university twice. They were interested in Japanese history of Samurai. When I visited Spinal Injury Center of western Denmark, I introduced Spinal Injury Center in Japan and how to treat patients with spinal cord injury. We could discuss the difference of treatment and medical system between the countries.



Presentation in Aarhus university



Presentation at Spinal Injury Center

6. Enjoyable party

Professor Cody obligingly invited us to his house. On the way to his house, we stopped by a castle and a museum of farming. As he has huge farm and forest, we enjoyed watching deer there. After that, we enjoyed “Smørrebrød” which is a famous open sandwich in Denmark and “Carlsberg” which is a world famous beer made in Denmark .



Prof. Cody and me at his house



Smørrebrød and Carlsberg

7. Conclusion

I deeply appreciate Professor Cody Büngrer for his hospitality. Also, I would like to thank Dr. Kestusis for arranging my daily routines and surgeries.

In addition, I would like to show my gratitude Jenny Wong who is Secretariat of APSS, Lone Sand Simonsen who is secretary of Aarhus university, and all the colleagues who took care of my patients during my absence in Japan.



Picture with spine team (from left: Dr Heishing, Dr Simon, me, Dr. Prakash (Nepal), Prof Cody Bunger, Dr. Lin (China), Dr Nicolina, Dr Kestutis)



Me, Dr. Kestutis, and Dr Sanjay (India)

An operation log book for all the cases

Date	Diagnosis	Surgery	Role	Surgeon
20-Sep	Neurofibromatosis	T12-L2 Laminectomy, Biopsy	Assistant	Prof. Cody Bunger
21-Sep	L5/S1 pseudoarthrosis	L5/S1 TLIF, L4/5 PLF	Assistant	Dr. Kestutis Valancius
22-Sep	T10-L5 post posterior fusion	T10-iliac PSF	Assistant	Dr. Haisheng Li
23-Sep	Thorathic Kyphosis	T2-L1 PSF, SPO (T6-8)	Assistant	Prof. Cody Bunger
24-Sep	L1 fracture (post op)	Removal of screw (T12-L2)	Assistant	Dr. Kestutis Valancius
25-Sep	Lumbar canal stenosis	L3/4, 4/5 decompression	Assistant	Dr. Kestutis Valancius
26-Sep	S1 hemivertebra, Scoliosis	L2-L5 PLF, L4/5 facetectomy	Assistant	Dr. Ebbe Stender Hansen
27-Sep	Spinal fracture	Spinal fusion (T5-L3)	Assistant	Dr. Tomas Bender
28-Sep	Spinal fracture	Spinal fusion (T2-L1)	Assistant	Dr. Kestutis Valancius
29-Sep	Burst fracture	T12-L2 PSF, USS system	Assistant	Dr. Kestutis Valancius
30-Sep	Multiple Cordoma	Laminectomy at C3-4 and T2-3	Assistant	Dr. Kristian Hoy
1-Oct	Metastatic tumor	T6 Laminectomy, T4,5,7,8 fusion	Assistant	Dr. Kristian Hoy
2-Oct	Burst fracture	Spinal fusion (T12-L1)	Assistant	Dr. Kristian Hoy
3-Oct	Lumbar canal stenosis	Decompression (L2/3/4/5/S)	Assistant	Dr. Peter Helmig
4-Oct	L2 fracture (post op)	Removal of screw (L1-L3)	Assistant	Dr. Anne Kirstine Hensen
5-Oct	Cervical spinal myelopathy	C4-T1 Decompression, PLF	Assistant	Dr. Kestutis Valancius
6-Oct	Degenerative scoliosis	T10-L5PLF, L1/2, 4/5Laminotomy	Assistant	Dr. Tomas Bender