

**APOA- APSS CLINICAL
FELLOWSHIP 2016 REPORT**

**GANGA HOSPITAL
COIMBATORE- INDIA
FROM MARCH 13TH TO MARCH 27TH**

**TRUC TAM VU MD.
HOSPITAL FOR TRAUMATOLOGY AND ORTHOPEDICS
HOCHIMINH CITY- VIETNAM**



I am Dr Vu Tam Truc, a 32 year-old spine surgeon working at Hospital for Traumatology and Orthopedics at Ho Chi Minh city, Vietnam. I'd like to describe myself as a dynamic and curious man. I have two passions in my life: studying spinal pathology and traveling. This is the reason why I have submitted for the APOA Depuy Synthes Fellowship twice. The last year my application was denied and luckily, I was accepted this year. It is very difficult to explain my feeling to be the chosen one: a mixture of pride, honor and happiness, a lot of happiness! I was even more surprised and honored when APOA assigned me to work at Ganga hospital, with Professor Rajasekaran. And there, my unforgettable journey began!

After a long flight from Vietnam to Coimbatore, with three transits at Bangkok, Mumbai and Chennai, I arrived at International Airport of Coimbatore city at 8:30AM, March 23th 2016. Dr Srikanth Dumpa, a very nice FNB fellow working at Ganga hospital picked me up from the airport and we went to my hotel- SPR Inn hotel. Professor Rajasekaran was very thoughtful as he had booked a comfortable room for me and furthermore, my hotel was very near to Ganga hospital by just a few minutes of walking. I was invited by Dr Ajoy Shetty to a welcome lunch, with other spine fellows. I feasted myself heartily, despite my fatigue after a red-eye flight. Indian foods are delicious, just a little bit too spicy for me, but I had two weeks to get used to it !



At 7:00AM March 13th, Dr Srikanth arrived at my hotel and he guided me to the hospital. From the outside, the frontal view of Ganga hospital is partially cover by a market, and the dynamic activities of people there reminded me of Ho Chi Minh city, my hometown. After crossing the Mettupayalam avenue and walking through a small alley, we arrived at Ganga hospital, just behind the market. Everything there was very clean and well organized. We arrived at 7:10AM and there was already a long queue of patients waiting in silence. Just a few days after, I found out that according to the

evaluation of 2015, Ganga hospital held the third place of the best hospitals in all India, and its spine center was rated as the best spine center of India. What a tremendous honor for me to be a fellow of Ganga hospital!



My friend took me right to the operative theatre at 7:30AM, and there was already an operation for me to observe. After having observed one case of L4-5 TLIF instrumentation, I finally met Professor Rajasekaran. He gave a short introduction about me to the other fellows and doctors, and we had a welcome dinner at the evening. Everybody was very nice friendly, especially Professor Rajasekaran.

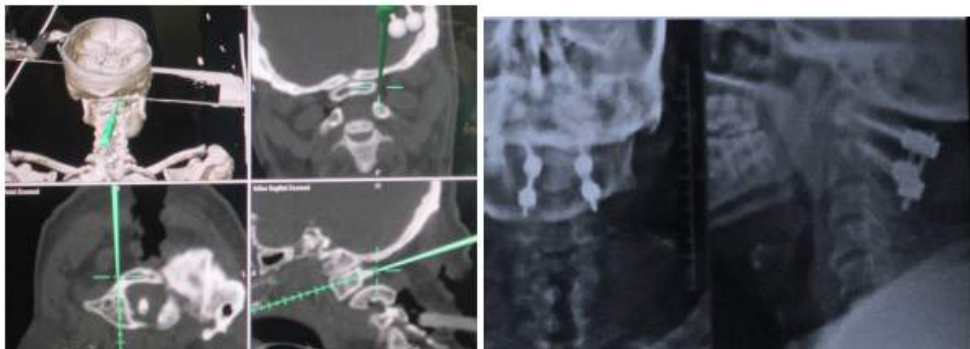
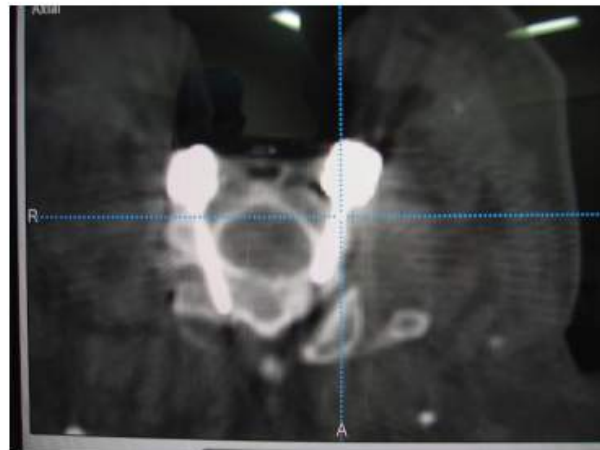


In India, people work six days a week, including Saturday. In Ganga hospital, operations are started from 7:00 AM, but Professor Rajasekaran frequently began his operation much sooner, from 6:00 AM, as he is a very busy man. Therefore, I usually woke up at 5:30 AM because I don't want to miss anything! Except Tuesday morning from 7:00 AM to 8:30 AM dedicated for Spine Teaching Program, I spent all my time in the OT. Thursday after noon, from 6:00 PM to 7:00 PM, we have a grand ward round. I have to admit that I never took a fellowship that intense and physically challenging. I'd like to address my respect to all the staff of Ganga hospital for their passion, commitment and dedication. It seems like they don't know about fatigue and exhaustion! The average number of operations done per day was from 10 to 12 cases, not including emergency trauma cases! But what I respected the most is that everything was accomplished just by three spine surgeons, Professor Rajasekaran, Dr Ajoy and Dr Rishie, with the assistance of 7 FNB spine fellows. The fellowship was not only a test of my knowledge, but my endurance as well! I have used 150% of my attention and strength during the fellowship, and the result was very productive because almost everything I want to learn is condensed and compacted just within two weeks, and my final feeling was much more than satisfaction.

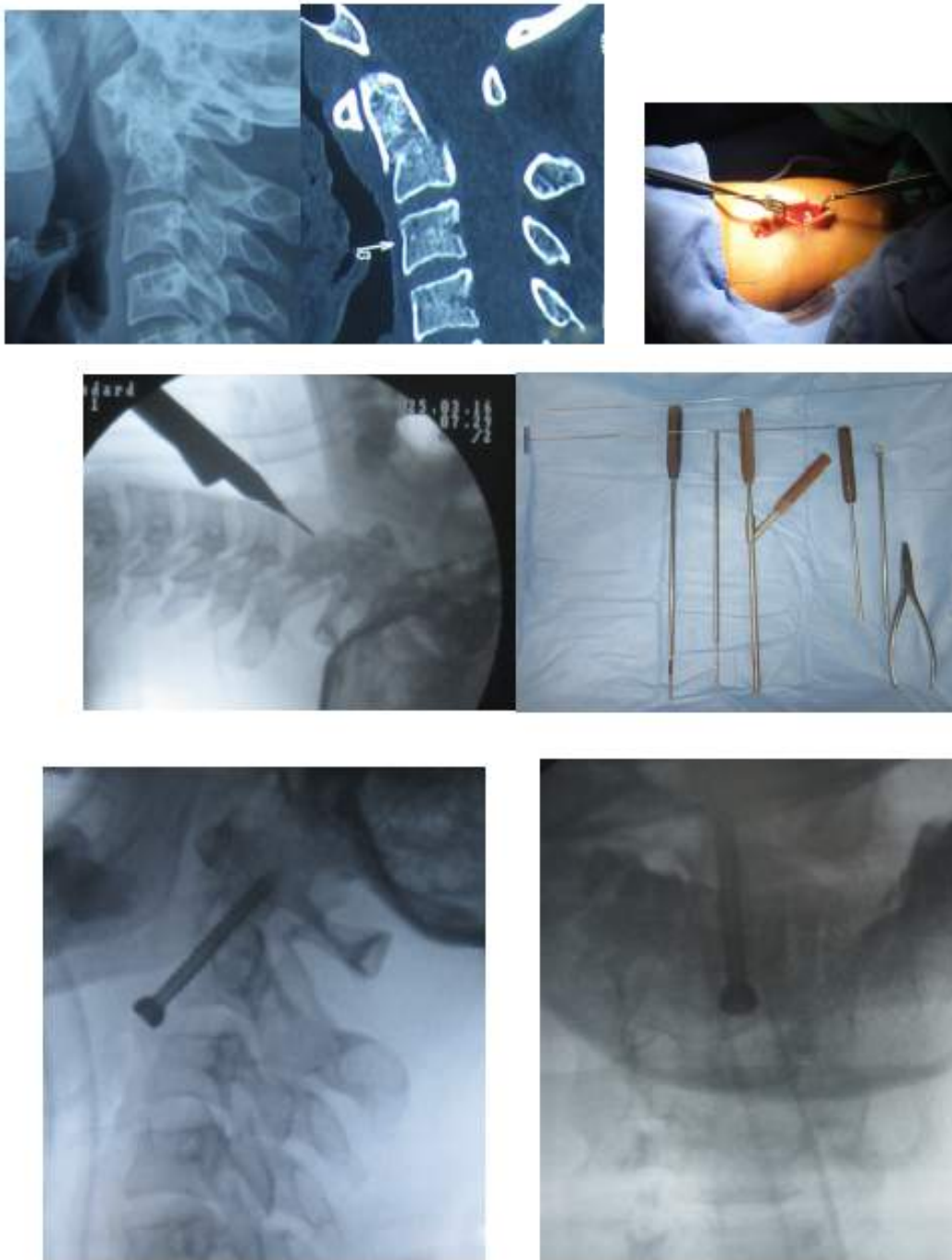
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
7:00-8:30	Operation theatre	Spine teaching program	Operation theatre	Operation theatre	Operation theatre	Operation theatre	
8:30-12:00		Operation theatre					
12:00-13:00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	
13:00-17:00	Operation theatre	Operation theatre	Operation theatre	Operation theatre	Operation theatre	Operation theatre	
17:00-18:00				Grand ward rounds			

In two weeks, I have observed and assisted more than 60 cases and it is impossible to list them all. I'd like to emphasize some interesting and highlighted cases only.

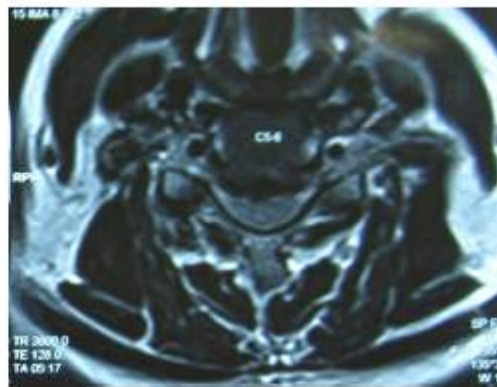
The first case was a cervical myelopathy patient due to C1-C2 instability. The chosen technique was C1-C2 posterior instrumentation. The problem was that the patient has high-riding vertebral artery at the left side, which can threaten the C1 screw trajectory. Professor Rajasekaran showed me the usefulness of his CT scan navigation system. I have witnessed C-arm or O-arm navigation in Japan and France during my previous fellowships, and this was my first time I saw how a CT scan navigation function. Accurate and super fast were the adjectives I'd like to use to describe that system. The total operative time is just 45 minutes, and the post-op CT scan confirmed perfect positions of the screws. The post-op atlantodental distance returned to normal value and the cord was completely decompressed.



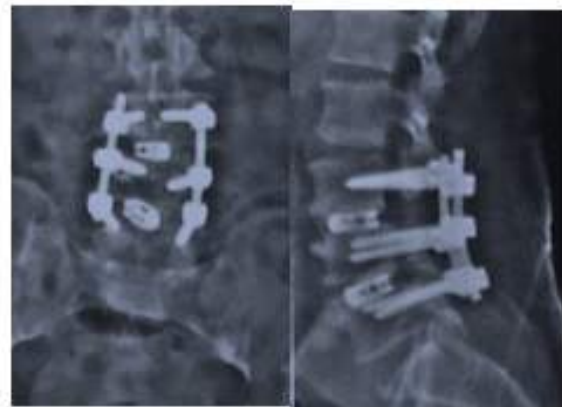
The second case was an odontoid fracture. The patient was operated the day after the admission day. Professor Rajasekaran has chosen the anterior odontoid fixation by screw. The well-positioned two C-arms served as one good biplanar C-arm, and the operation was done quickly within 30 minutes. Professor Rajasekaran made a 2 inches incision at C5 level, and he used a protecting and aiming device to insert the guide-wire, to drill, to tap and finally to put a cannulated screw for odontoid fixation. That is a very good technique as we can preserve the rotation movement of C1-C2.



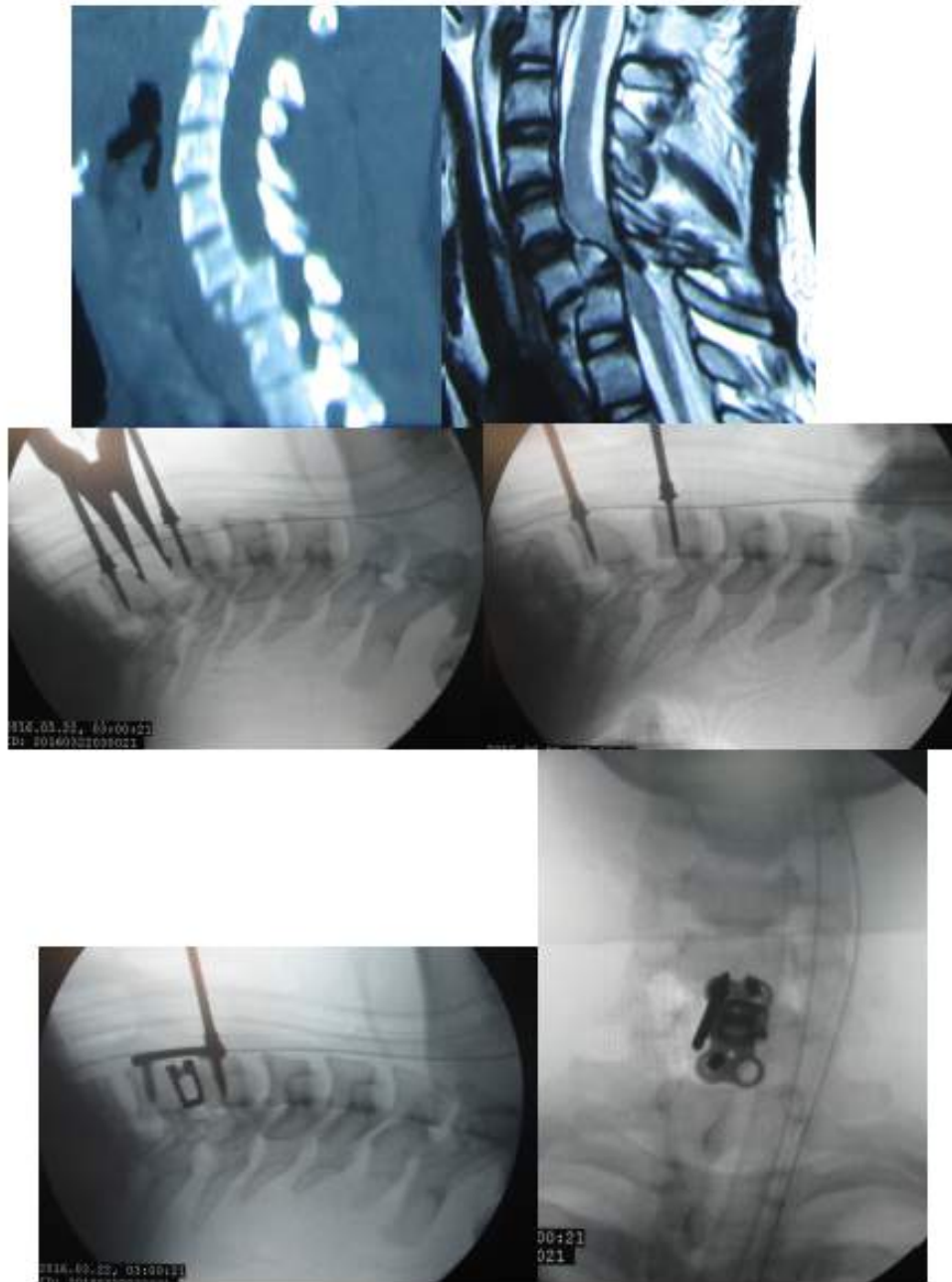
The third case is a cervical myelopathy patient due to disc herniation. The surgical treatment is the conventional anterior discectomy and fusion with the help of microscopy. The surgical field magnified by microscopy was much better than surgeon's eye, and the decompression could be done thoroughly with minute haemostasis. The decompression must be performed till the dura, for all cases. Professor Rajasekaran wouldn't stop decompressing when he faced epidural bleeding, but in contrary, he continued the procedure until the bleeding stopped spontaneously. The concept is simple: when the decompression is complete, the dura will inflate like a balloon and compress the epidural venous plexus and stop the bleeding.



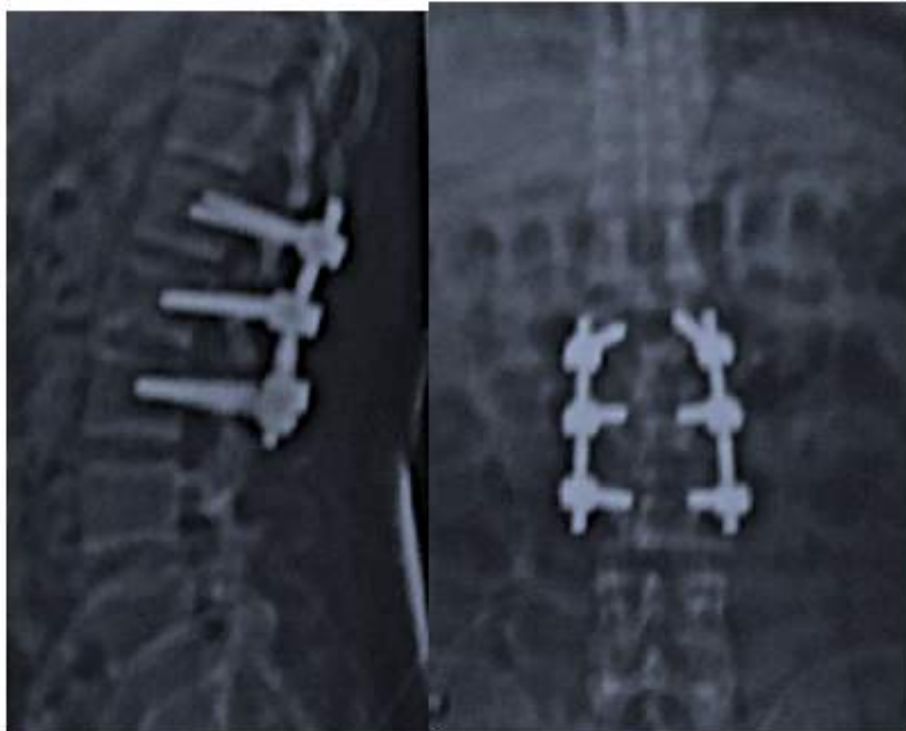
For lumbar spine disorders such as spinal stenosis or spondylolisthesis with instability requiring stabilization, the chosen technique is the conventional posterior decompression and pedicle screw fixation with transforaminal interbody fusion. Surgeon of Ganga hospital used the oblique titanium cage as spacer. What impressed me the most was the fact that more than 90% of the need of instruments at Ganga hospital is filled by Indian company, with a price much lower than western company.



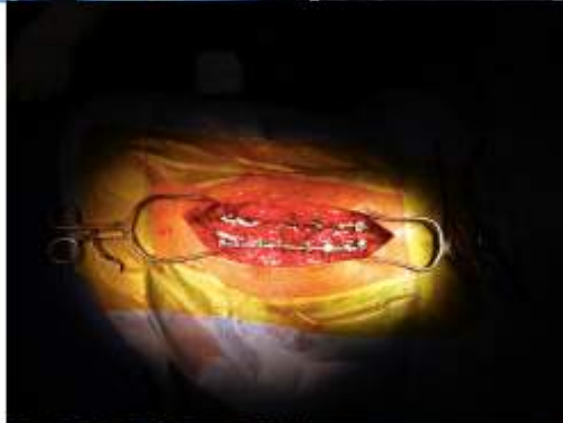
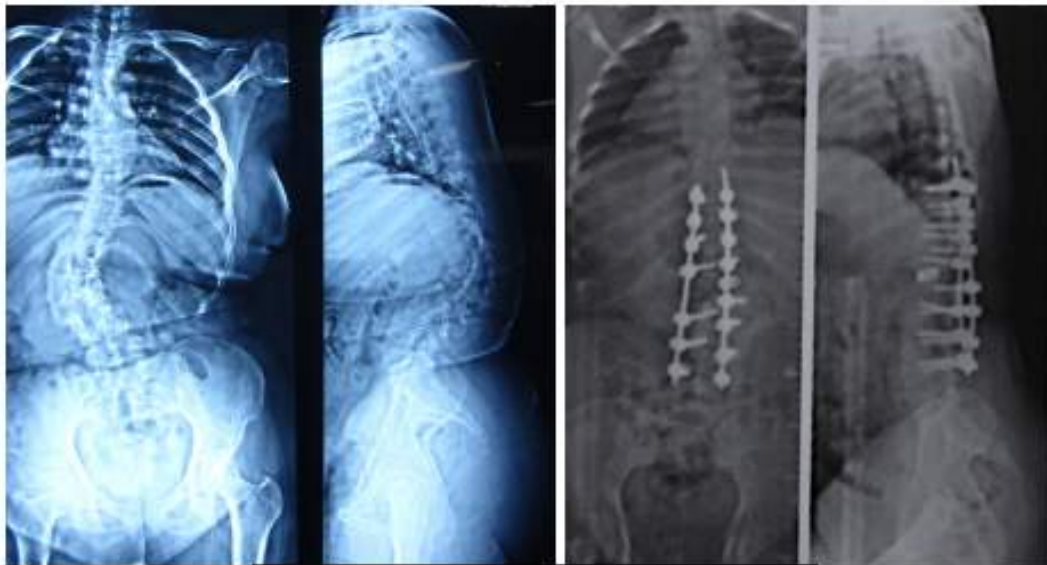
The first case was a trauma case. A 60-year-old male patient has fallen from the rooftop to the ground and suffered from C6-7 fracture-dislocation. His neurological status was ASIA A, with complete quadriplegia. Dr. Rishie has performed an anterior decompression and reduction by using a distractor and Kaspar pins. This was the first time I witnessed the anterior reduction for cervical dislocation.



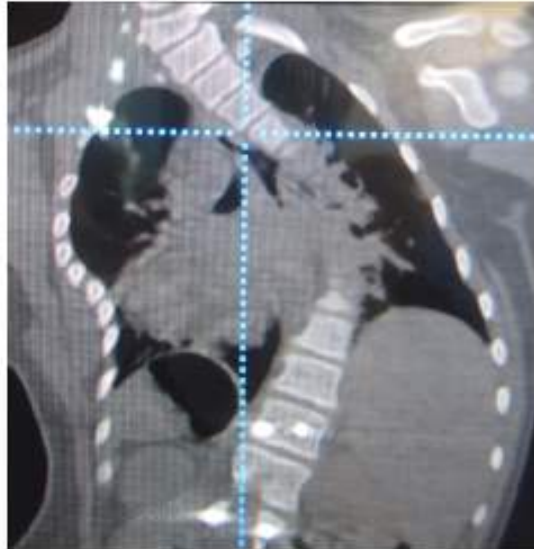
For thoracolumbar burst fractures, the chosen technique included posterior short segment instrumentation with screw augmentation at fractured vertebra, direct decompression by laminectomy and indirect decompression by ligamentotaxis effect . This technique has two benefits: 1). Avoiding complication of anterior approach, 2). Preserving segmental motion better than long segment.



The seventh case was a kyphoscoliosis patient due to hemivertebra of L2. Professor Rajasekaran has performed a long operation including wide laminectomy and osteotomy, long segment pedicle screw fixation for kyphotic and scoliotic correction. That patient has very small pedicles with abnormal orientation, and thanks to the CT scan navigation, all of the screws were perfectly inserted. The correction was done gradually, with two times of rods changing. Furthermore, the whole correction procedure was monitored by the motor evoked potential system and finally, the neurological status of the patient was confirmed by wake-up test. The day after, the patient could stand up and go to the rest room by herself,



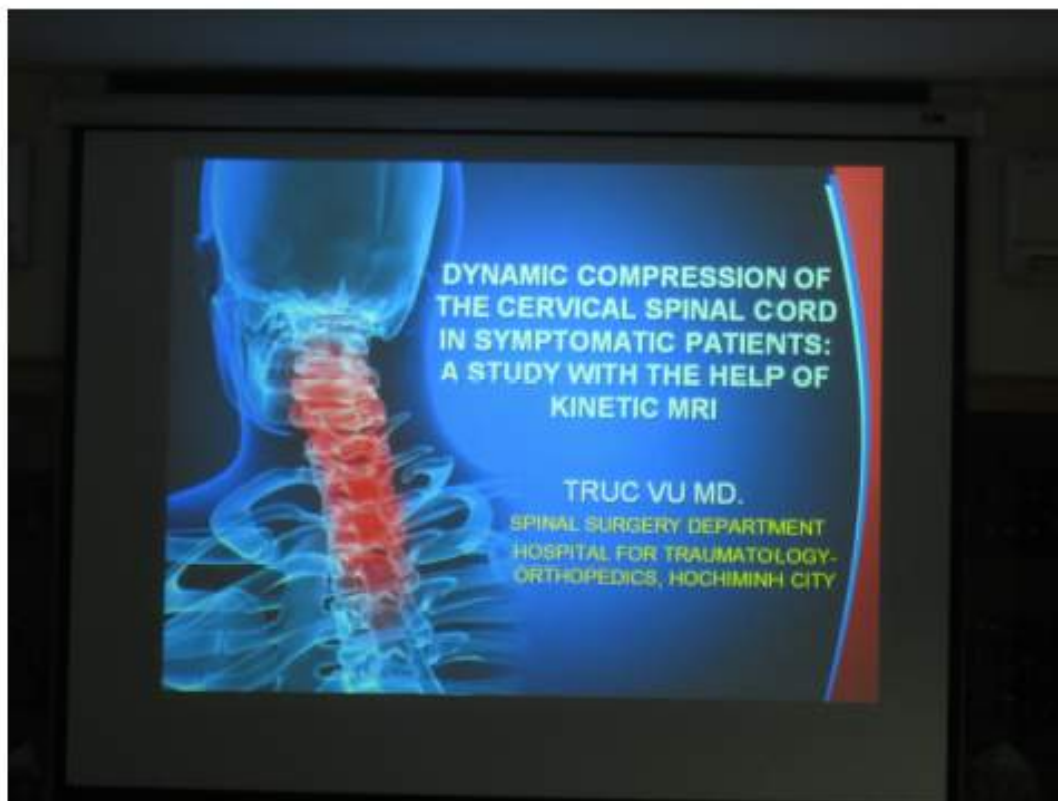
The eighth case was an adolescent idiopathic scoliosis case. The operation was the conventional posterior instrumentation and correction. With the help of CT scan navigation, all of the screws were accurately purchased and the result was very satisfying.



The ninth case was thoracolumbar tuberculosis case. The chosen procedure was posterior decompression and debridement, with long segment instrumentation and restoring the weight-bearing capacity of the anterior column by putting a titanium cage from behind. This technique is very useful for me because we have increasing TB spine cases in Vietnam, and the posterior approach alone operation can decrease the complications of the anterior or two-way-approach operations.



As a part of the fellowship, I had the chance to present my research on the dynamic compression of the cervical spinal cord by using kinetic MRI. I have received a lot of comments and some compliments from Professor Rajasekaran and the staff of Ganga hospital. This was a perfect rehearsal for me to before my official presentation at CSRS-AP 2016 at Seoul, Korea.



Two weeks at Ganga hospital were short, but enough for me to make new good friends. Thanks to the hospitality and generosity of Professor Rajasekaran and the staff of Ganga hospital, I felt myself at home. I believe that we can keep in touch in the future se we can continue to change knowledge and experiences to each other.





The second part of my journey was the trip to Melbourne to attend the 2016 APOA Congress. After almost 48 hours of flight and transit, finally, I arrived at one of the most worth living city of the world!

The Congress will be held at the Melbourne Exhibition Center. This is an amazing architecture located on the southern side of Yarra river, and the monument has its uniqueness as the main gate is a beautiful bridge for pedestrian crossing Yarra river.



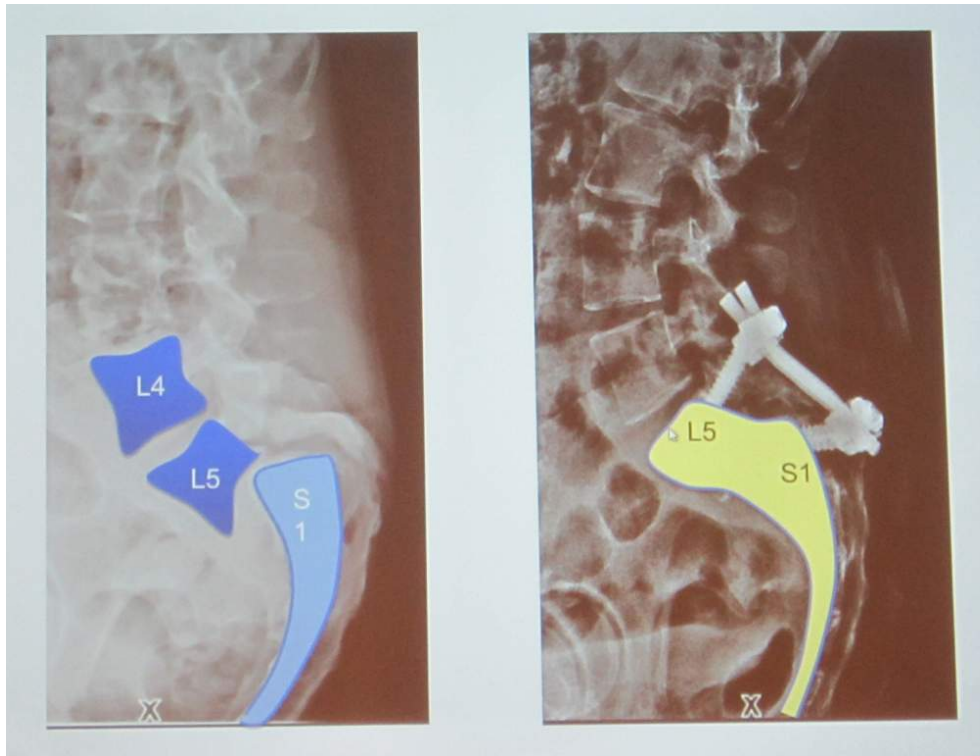
At 2016 APOA Congress, I had the chance to meet my colleagues from Hospital for Traumatology and Orthopedics. This year the Vietnam delegation had two presentations. I also meet Professor Rajasekaran, Professor Kwan Mun Keong, Professor Po Wan Chen, Professor Abumi... A wonderful reunion!



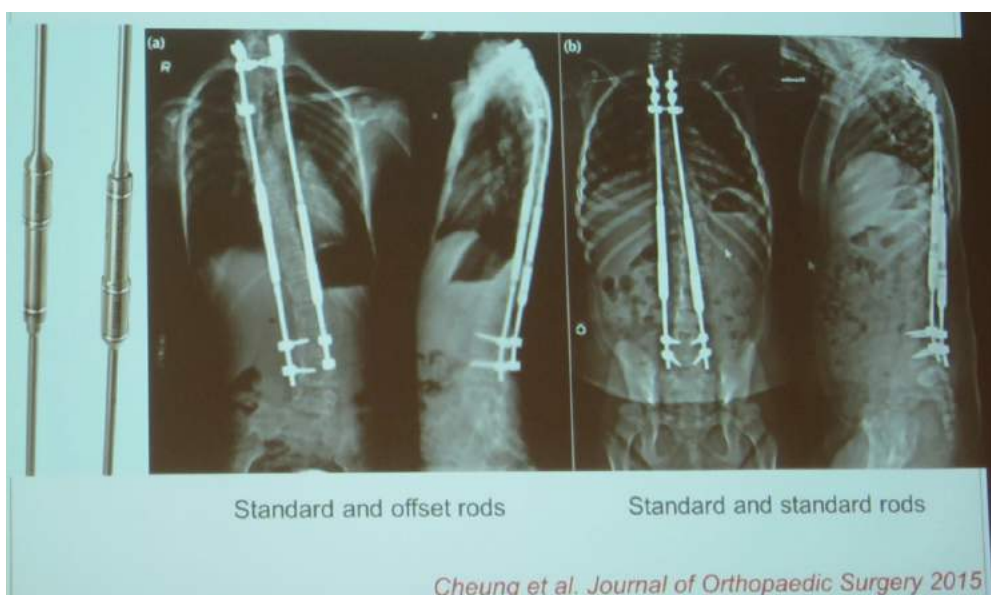


The main topic of 2016 APOA Congress was Traumatology. Professors and lecturers from many countries have presented the most updated knowledge and concepts in trauma care and prevention.

There was also some highlighted debatable topic in deformity treatment such as “should we reduce high-grade spondylolisthesis?” Professor Rajasekaran has presented an impressive concept about in-situ fusion for high-grade spondylolisthesis cases.



In infantile and juvenile scoliosis, good technologies preserving the growth of the patients were presented, such as modified dual growing rods technique from India, or magnetic rods technique from Hong Kong.



No	Age		Date of surgery	Diagnosis	Operation/Procedure	Surgeon	Observer/ assistant
	Male	Female					
1		37	14/03/2016	L5-S1 Grade II lytic spondylolisthesis with (R) lumbar radiculopathy	L5-S1 TLIF	Pr Rajasekaran	Observer
2	43			L4-5 disc prolapse	L4 nerve root block	Dr Rishi	Observer
3	67			L2-5 lumbar canal stenosis with L3 lysis	L2-5 TLIF	Pr Rajasekaran	Assistant
4		35		L4-5 extruded disc with (R) radiculopathy	L4-5 discectomy	Pr Rajasekaran	Observer
5	70			T12-L1 spondylodiscitis- Potts disease	T10-L3 posterior instrumented stabilization with biopsy and anterior cage reconstruction	Pr Rajasekaran	Assistant
6	80			C3-4-5-6 disc osteophyte complex with cervical spine myelopathy	C3-6 laminectomy	Pr Rajasekaran	Assistant
7		58	15/03/2006	L3-4-5 recurrent stenosis with (R) radiculopathy	L3-5 decompression, L3-5 instrumented stabilization with L4-5 TLIF	Dr Rishi	Observer
8	47			L4-5 disc prolapse with (R) radiculopathy	S1 nerve root block	Dr Rishi	Observer
9		32		L4-5 disc prolapse	L5 nerve root block	Dr Rishi	Observer
10	54			L2-3 disc prolapse	L2-3 discectomy	Dr Rishi	Assistant
11	76			L4-5 disc prolapse with (R) radiculopathy	L4-5 discectomy	Dr Rishi	Assistant
12		45		L3-4-5-S1 lumbar canal stenosis with (R) radiculopathy	L3-4-5 decompression with spinous process splitting, L5-S1 discectomy	Dr Rishi	Observer
13		19		L2-3-4 burst fracture ASIA A	D12-L5 instrumented and L4-5 decompression	Dr Rishi	Observer
14	16		16/03/2006	L5-S1 Grade 1 lytic spondylolisthesis	L5-S1 TLIF	Dr Ajoy	Observer
15	45			C6-7 disc prolapse with cervical myelopathy	C6-7 ACDF	Dr Ajoy	Observer
16	28			L5-S1 disc herniation with (L) radiculopathy	L5-S1 discectomy	Dr Ajoy	Assistant
17	60			L5-S1 disc herniation with (L) radiculopathy	L5-S1 microdiscectomy with fat pad technique	Pr Rajasekaran	Observer
18		36		Congenital dorsolumbar kyphoscoliosis with neurological deficit	D9-L5 posterior instrumented kyphoscoliotic correction with hemivertebra resection	Pr Rajasekaran	Assistant
19	58		17/03/2006	C5-6 disc prolapse with cervical myelopathy	C5-6 ACDF	Dr Ajoy	Observer
20	43			L4-5 disc prolapse	L4-5 discectomy	Dr Ajoy	Assistant
21	45			L4-5 disc prolapse with L4-5 retrolisthesis	L4-5 TLIF	Dr Ajoy	Observer
22	21			D12 flexion-distraction fracture	D11-L1 posterior instrumentation	Dr Ajoy	Observer

23	68		18/03/2016	C1-2 instability with cervical myelopathy	C1-2 posterior instrumentation with navigation	Pr Rajasekaran	Observer
24	64			(R) L5-S1 facet cyst with (R) radiculopathy	micro surgery cyst removal and decompression	Pr Rajasekaran	Observer
25	34			L5-S1 disc prolapse	L5-S1 microdiscectomy with fat pad technique	Pr Rajasekaran	Observer
26		14	21/03/2016	Idiopathic scoliosis	Posterior instrumented deformity correction and fusion	Pr Rajasekaran	Assistant
27		10		Arnold Chiari malformation	Foramen magnum decompression	Pr Rajasekaran	Assistant
28	72			D12 pseudarthrosis/ diabetes	Vertebroplasty	Dr Rishi	Observer
29	45			D12 spondylodiscitis	Posterior debridement, instrumented kyphotic correction and fusion	Pr Rajasekaran	Observer
30		56	22/03/2016	L3-4-5 lumbar stenosis	L3-5 decompression and instrumentation	Dr Rishi	Assistant
31	52			L4-5-S1 lumbar stenosis with L5-S1 spondylolisthesis	L4-S1 TLIF	Dr Rishi	Observer
32		32		L2 burst fracture	L1-L3 instrumentation	Dr Rishi	Assistant
33	60			L2 flexion distraction fracture	L1-L3 instrumentation and fusion	Dr Rishi	Observer
34		16	23/03/2016	Neuromuscular thoracic scoliosis	Posterior instrumented deformity correction and fusion with navigation	Pr Rajasekaran	Assistant
35		13		Adolescent idiopathic scoliosis Lenke 6	Posterior instrumented deformity correction and fusion with navigation	Pr Rajasekaran	Assistant
36		6		L1 diastematomyelia	Diastematomyelia excision	Pr Rajasekaran	Observer
37	22			L5-S1 disc prolapse	L5-S1 microdiscectomy with fat pad technique	Pr Rajasekaran	Observer
38	20			C6-7 bilateral dislocation	C6-7 anterior decompression, reduction and ACDF	Dr Rishi	Assistant
39		13	24/03/2016	Adolescent idiopathic scoliosis Lenke 2	Posterior instrumented deformity correction and fusion	Dr Ajoy	Assistant
40	57			L4-5 disc prolapse	L4-5 discectomy	Dr Ajoy	Observer
41	62			L2 lytic lesion	Transpedicular biopsy	Dr Ajoy	Observer
42	65			Hangman fracture with atlanto-axial rotary luxation	C2-3-4 ACDF with plating, anterior C1-2 screw fixation	Dr Ajoy	Assistant
43	57		25/03/2016	L3-4-5 lumbar stenosis	L3-4-5 decompression	Dr Ajoy	Observer
44		26		L5-S1 disc prolapse	L5-S1 discectomy	Dr Ajoy	Observer
45	23			L4-5 lytic spondylolisthesis	L4-5 TLIF	Dr Ajoy	Assistant
46	52			Healed L1 flexion-distraction fracture	Implant removal	Dr Rishi	Observer



Finally, I would like to address my deep gratitude to firstly, Professor Rajasekaran and all the staff of Ganga hospital for their hospitality. And last but not least, I would like to say thank you to the APOA-APSS comitte and Depuy Synthes company for giving me such a wonderful opportunity to open my eyes and my mind. Thank you for everything !