History of Neurosurgery in Malaysia

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Abstract

The development of neurosurgical services and training in Malaysia began in 1963, with the first centre established in its capital city at Hospital Kuala Lumpur, aimed to provide much needed neurosurgical services and training in the field of neurology and neurosurgery. This center subsequently expanded in 1975 with the establishment of the Tunku Abdul Rahman Neuroscience Institute (IKTAR); which integrated the three allied interdependent disciplines of neurosurgery, neurology and psychiatry. The establishment of this institute catalysed the rapid expansion of neurosurgical services in Malaysia and paved the way for development of comprehensive training for doctors, nurses, and paramedics. This culminated in the establishments of a local comprehensive neurosurgery training program for doctors in 2001; followed by a training program for nurses and paramedics in 2006. To date, there are more than 60 neurosurgeons providing expert care in 11 centers across Malaysia, along with trained personnel in the field of neurosciences.

Keywords: Malaysia. Neurosurgery, history, IKTAR

The development of Neurosurgery and Neurology in post-independence Malaysia began more than 50 years ago. The first Neurosurgical and Neurology Unit in Malaysia was established on 12th August 1963 (1). Prior to that, there were no organised neurosurgery or neurology specialities, and general surgeons, who were working to the best of their abilities, were performing neurosurgical services, whereas general physicians and paediatricians provided neurology services. In 1963, through the assistance and auspices of a voluntary organisation, CARE MEDICO, an American neurosurgeon, Dr Roy Selby, travelled to Malaysia to develop these services in a new established centre in General Hospital Kuala Lumpur (1).

Dr Selby provided both neurosurgical and neurology services in the newly established unit during its initial years of use. The unit consisted of a separate building with a 45-bed ward, clinics, conference halls, library, record room, offices and laboratories for electroencephalogram (EEG), neuropathology, and neuroradiology. Dr Selby functioned as a neurosurgeon, neurologist, neuropathologist, neuroradiologist, and neurophysiologist; in essence, he acted as a complete neurosurgeon. His vision and drive resulted in a well-established, independent specialty unit in Malaysia, which aimed to provide services for patients and developments in the field of neurosurgery by training local doctors and personnel. His vision and efforts were subsequently continued and completed by his medical officer, Dato' Dr Nadason Arumugamasamy, Malaysia's pioneer neurosurgeon in 1969 (2).

Dr Selby played an instrumental role in establishing the Neurosurgical Foundation of Malaysia in 1967 to promote the interests of neurosurgery and its allied fields of neurology, neuroradiology, and psychiatry. With the formation of this foundation, the idea of a Neuroscience Institution was conceived.

Dato' Dr Arumugasamy, the first Malaysian neurosurgeon who returned from his training in America in 1969 to helm the Unit in Hospital Kuala Lumpur, replaced Dr Selby. Dato' Arumugasamy, the only neurosurgeon in Malaysia, built on the foundations of his predecessor as he similarly functioned as a complete neurosurgeon and actively developed neurosurgery and training in Malaysia (2).

The establishment of the Tunku Abdul Rahman Neuroscience Institute (IKTAR) in 1975 catalysed the development of neurosurgery

in Malaysia. The Neuroscience Institute became the first grouping of subspecialties conceived under the Second and Third Malaysia Plans. It represented the vision of the then Prime Minister, Tunku Abdul Rahman, the Father of Independence, after whom the Institution is named. The foundation stone of the building was laid by Tunku Abdul Rahman on 20th April 1970 (1,2). The institute consisted of the three allied interdependent disciplines, neurosurgery, neurology, and psychiatry, under one institute, as well as supportive services, such as neuroradiology, neuropathology, operating theatres, intensive care units (ICUs), and neurodiagnostic laboratories. Tan Sri Mohd Din Ahmad, the Chairman of the Ministry of Health Malaysia and Neurosurgical Foundation, significantly contributed to equipping the institute. Various individuals, local organizations and state and foreign governments generously helped to equip the newly established institute. The institute was formally opened on the 25th of March by then Health Minister, Tan Sri Lee Siok Yew.

The Institute houses three operating theatres, an 11-bed Neuro-Intensive Care Unit (Neuro ICU), a psychiatric ward with 40 beds, a neurology ward with 60 beds and four neurosurgery wards with 150 beds. It also houses a neuroradiology unit with a CAT scanner, as well as a neuro-diagnostic unit. The institute serves as a national referral and training centre for neurosurgery. In realising the vision of Tunku Abdul Rahman, the Ministry of Health Malaysia and the Neurosurgical Foundation, many local doctors were sent overseas to train in centres in the United Kingdom, Australia, and Belgium.

Training was also expanded to include specialisation in neuroscience for nurses and paramedics to provide comprehensive specialised care for patients. Nurses and paramedics followed similar training paths as doctors during the infancy of neurosurgical development. The first batch of nurses who were selected for specialised neurosurgery training were sent to Japan in 1981 for a 1 year training course in selected Japanese centres. This training program served as the first joint training venture in Neurosurgery between Japan and Malaysia; it was fully sponsored by the International Nursing Foundation of Japan. Nurses from Malaysia were awarded a Diploma in Advanced Neurosurgery Nursing upon completion of training. This training program continued for 14 years until local training was structured

and established in Malaysia in 1995 (3). This exchange training program was highly beneficial for Malaysia in terms of developing neurosurgical services and fostering strong ties between the neurosurgical fraternities of both nations, which continue to prosper. Apart from a 1 year training program in Japan, a small group of nurses was also sent to receive training for 2 years degree in Neuroscience Nursing from Oxford Brooks University in the United Kingdom. The graduates of this degree program subsequently established a structured training program in Malaysia. The local training program in Neurosurgery began in 2006 with six months of certified training in Neuroscience nursing (3). This was the first structured training course in the field of neuroscience training in Malaysia, and it had a clinical emphasis on neurosurgery, neurology and neurorehabilitation. The program aimed to produce competent nurses who could provide efficient and specialized care in neurosurgery, neurology and neurorehabilitation in various centres across the country.

As a result of recognising the rapidly expanding demand and importance of efficient delivery of health services in the field of neurosciences, the Ministry of Health Malaysia introduced a 1 year Advanced Diploma in Neuroscience Nursing training program in 2013, which aimed to train a specialised group of Registered Neuro Nurses in Malaysia. This program provided focused, concise, and comprehensive training in various neuroscience fields, which placed additional emphasis on research. To date 400 staff are trained in Neuroscience nursing across the country.

This allowed for neurosurgical services to be expanded across the country to all major states in Malaysia: Pulau Pinang; Ipoh, Perak; Sungai Buloh, Selangor; Johor Bharu, Johor; Kota Kinabalu, Sabah; and Kuching, Sarawak, providing much needed services to an expanding population.

Neurosurgical centres and training programs were also established in major universities, namely Universiti Malaya, Universiti Sains Malaysia and Universiti Kebangsaan Malaysia. Through the efforts of these local universities, local lecturers were sent abroad to train in neurosurgery; subsequently, they established services and training programs in neurosurgery upon their return.

The first and only local training program for neurosurgery was established in 2001 under the guidance and leadership of Professor Dato' Dr Jafri Malin Abdullah in the Department

of Neurosciences, School of Medical Sciences Universiti Sains Malaysia. The training program consisted of two plus four years of focused, comprehensive clinical training in the field of neurosurgery, which was aimed at developing competent neurosurgeons who could provide effective and safe services, fulfilling the needs of a rapidly developing nation. With the establishment of this local training program, neurosurgery services were further extended to include more states, including Alor Star, Kedah and Kuantan, Pahang.

From its humble beginnings in 1963, neurosurgery in Malaysia has developed rapidly (Figure 1-7), and there are now more than 60 neurosurgeons providing services in the public, university and private sectors. The Neuroscience Institute in Hospital Kuala Lumpur has played an integral role in the development of neurosurgery in Malaysia since its inception in 1963. With the establishment of a local training program, current existing services can be strengthened and expanded, and future neurosurgical centres can be established, along with the development of sub-specialties in the field of neurosurgery. The sub specialties that are currently being developed include Radiosurgery, Paediatric Neurosurgery, Neuro-Spine, Minimally Invasive Neurosurgery,

Endoscopic Neurosurgery, and Functional Neurosurgery. Neurosurgery in Malaysia is now established on the international stage and has actively participated and hosted many prestigious international meetings and conferences for various sectors.
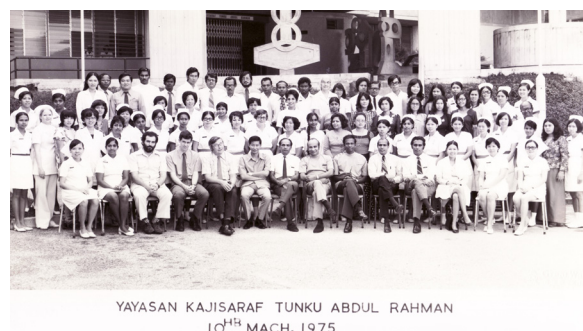

Figure 2: Official opening of Institut Kajisaraf Tunku Abdul Rahman, Hospital Kuala Lumpur on 10th March 1975.

Figure 3: Hospital Kuala Lumpur in 1970's; General Wards and Administrative Building.

Figure 4: Hospital Kuala Lumpur in 1970's; Oncology Block on Left and Institut Kajisaraf Tunku Abdul Rahman on Right.

Figure 1: Perioperative Mortality Review Committee, Department of Neurosurgery, Hospital Kuala Lumpur 1997. Standing from Left to Right: Datuk Dr Saffari Haspani, Late Dr Anil Sivasangkaran, Dr Baskaran Suppiah, Dr Azmin Kass Rosman, Prof Dr Ahmad Zubaidi, Dr Abdul Muin Ishak. Seated from Left to Right: Datuk Dr Johari Siregar Adnan, Dato' Dr Selvapragasam (HOD), Dr Yoong Mew Foong.

Figure 5: Department of Neurosurgery 2010. Datuk Dr Saffari Haspani Head of Department (seated 5th from left), senior consultants Dr Azmi Alias (seated 4th from left) and Dr Ramesh Narenthiranathan (seated 6th from left); along with specialist, medical officers and staff.

Figure 6: Department of Neurosurgery, 1975; Dato' Dr Nadason Arumugsamy seated 4th from left along with specialist, medical officers and staff.

Figure 7: First International Symposium in Neurology and Neurosurgery held in Institut Kajisaraf in 1975; in conjunction with official opening of Institut Kajisaraf Tunku Abdul Rahman.

Authors' Contributions

Conception and design, drafting of the article, critical revision of the article for important intellectual content: MAMR, JMA, SH, JSA

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