Final Report

The one-year functional neurosurgery & epilepsy fellowship and PhD program sponsored by the Ministry of Health, Malaysia, which I was privileged to undertake, offered advanced, focused exposure to the subspecialty's most technically demanding and intellectually nuanced procedures — laying the foundation for independent practice and academic leadership in this field.

Throughout this fellowship year, I had the honour of working closely with Professor Kubota and his team, acquiring comprehensive competency across the full spectrum of functional neurosurgery and, most specifically, epilepsy surgery. Core clinical experiences encompassed robotic implantation of electrodes for stereoelectroencephalography (SEEG), epilepsy resective procedures, microvascular decompression surgeries, vagal nerve implantations, and deep brain stimulation (DBS) for epilepsy and for movement disorders including Parkinson's disease. These were further complemented by stereotactic radiosurgeries and neuromodulation therapies for chronic pain conditions. I was equally fortunate to broaden my experience in intracranial EEG reading and interpretation, the management of refractory status epilepticus, and flexible intracranial endoscopic procedures, as well as to participate in vascular and spinal instrumentation surgeries. As a fellow, I am also engaged actively in multidisciplinary team conferences and patient assessments during the WADA test, refining my competency in patient selection, preoperative evaluation, intraoperative neurophysiological monitoring, and long-term outcomes assessment.

I remain deeply grateful for the remarkable breadth of training opportunities made available to me — from laboratory access for microvascular anastomosis practice, to trainings at some of Japan's most distinguished centres. These included Moriyama Memorial Hospital under Professor Yamada, renowned for his expertise in transnasal endoscopic procedures; Tsukiji Gamma Knife Center under Professor Serizawa; Osaka University Functional Neurosurgery team under Professor Khoo; St. Luke's International Hospital Tokyo for cerebral bypass surgeries under Professor Kawashima; and also the opportunity to scrub alongside with Professor Shirozu from Fukuoka Sanno Hospital, whose mastery of stereotactic thermocoagulation for hypothalamic hamartoma is widely recognised. Hands-on training courses at Hokkaido University and Tenshinkai Hospital in Sapporo further enriched this exceptional year.

A particularly meaningful aspect of the fellowship was my weekly attachment to the Tokyo Institute of Technology under Professor Miyashita — a pioneer in the use of primate models to explore the brain mechanisms underlying motor control. Through his research, which involves training non-human primates to elucidate cortical activity related to movement, I am grateful to be closely involved in cutting-edge work on next-generation brain interface electrodes, offering a profound and inspiring glimpse into the future of neuroscience and BMI.

Beyond operative training, the fellowship nurtures the scholarly foundation indispensable to academic neurosurgery. Fellows are expected to contribute meaningfully to monthly journal club discussions, pursue ongoing research, co-author publications, and present their work at national

and international conferences. Guided by experienced mentors, trainees develop not only technical precision but also the clinical judgment and professional identity essential to becoming true subspecialists in epilepsy surgery.

Perhaps among the most enduring rewards of this fellowship are the relationships forged along the way. Fellow trainees, mentors, and multidisciplinary colleagues became more than professional acquaintances — they became trusted peers whose wisdom, support, and friendship I know will prove invaluable throughout my career. In a field that demands precision, resilience, perseverance and a lifelong commitment to patients, to be surrounded by those who understand that calling is a privilege beyond measure.

I wish to close with my gratitude to my family as my strength and pillar of support, and also to my teachers - Dr. Saiful Azli, Dato' Dr. Azmin Kass, Dr. Albert Wong Sii Hieng, Datuk Johari Serigar, Professor Zamzuri, Professor Takizawa, and Professor Jafri Malin — whose unwavering encouragement and steadfast support have been a constant source of perseverance throughout my neurosurgical journey so far. My deepest thanks also to Professor Miyashita and his wonderful team at Tokyo Tech, and to my teacher, Professor Kubota and his ever-gracious team at TWMU Adachi Medical Center, for making my time in Tokyo truly memorable.

- You Xinli
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