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Letter to Editor

John Ching-Kwong Kwok (1951–2020): The Renaissance Man of Hong Kong Neurosurgery

Sir,

On April 9, 2020, Dr. John Kwok, a pioneering neurosurgeon and neurointerventionalist in Hong Kong and Southeast Asia, passed away peacefully at Kwong Wah Hospital (KWH), Hong Kong, at the age of 69 in the company of his family.

John was born on February 14, 1951, the eldest of three siblings. From a young age, he exhibited an inquisitive flair for invention and discovery. Long before his graduation from Hong Kong's prestigious Saint Paul's College, John earned a reputation for experimenting with rockets using combustible fuels to the chagrin of his parents, secondary school teachers, and to the amusement of his schoolmates. He studied medicine at the National University of Ireland Galway graduating in 1979. John continued his surgical training in Southern General Hospital, Scotland, and was inspired to undertake neurosurgery after assisting Professors William Jennett, who devised the Glasgow Coma Scale, and Sam Galbraith, the brilliant neurosurgeon-turned health minister, operating on traumatic brain injury patients. In 1985, John subsequently earned Fellowships from the Royal College of Surgeons of Glasgow and Edinburgh.

Upon his return to Hong Kong in 1985, John joined the fledgling Department of Neurosurgery, KWH, Tung Wah Group of Hospitals, the oldest charitable hospital in the city committed to the treatment of impoverished Chinese patients. Working alongside his mentor Dr. Hsiang-Lai Wen, the father of Hong Kong neurosurgery, John developed Hong Kong's first independent neurosurgical department from humble beginnings.[1] He subsequently enhanced his skills in cerebrovascular neurosurgery, a specialty that he would dedicate his life to, by undergoing a clinical fellowship at the University of Western Ontario under the tutelage of renowned Professors Charles Drake and Sidney Peerless in 1988. Becoming increasingly aware of the benefits of endovascular therapy, John also trained under Professor Jacques Moret, the eminent neurointerventionalist, at Bicetre University Hospital, Paris. In 1989, he became the chief of neurosurgery of KWH and in the following year introduced the first digital subtraction angiographic machine devoted to neurovascular treatment. Due to his indefatigable spirit, the department's services flourished to one of the most advanced centers in Hong Kong. Realizing the need for specialized perioperative management, John fought for funding and designed the first neurosurgical high dependency unit in the city in 1995, which to this day provides state-of-the-art neurocritical care. Following his lifelong passion, he was the first to utilize Guglielmi detachable coils for the occlusion of intracranial aneurysms in Southeast Asia significantly reducing the risk of intraoperative rupture compared to other devices such as balloons or nondetachable free coils.[2] John was instrumental in introducing this technique that led to a paradigm shift in the management of intracranial aneurysms in the region. In addition, he was the first in Hong Kong to report the use of flow diverters, in particular the Pipeline embolization device, for the management of wide-neck internal carotid artery aneurysms highlighting their safety in what would have been difficult-to-treat lesions.[3] In recognition of his contributions to the advancement of neurosurgery, John was elected Foundation Fellow by the College of Surgeons of Hong Kong in 2000. To foster better collaboration between neurointerventionalists of this new specialty, he founded the Hong Kong Society of Interventional and Therapeutic Neuroradiology in 2006 and was treasurer of the Asian-Australasian Federation of Interventional and Therapeutic Neuroradiology until 2014. He was also the founding member of the Hong Kong Stroke Society, former vice president of the Hong Kong Neurosurgical Society, and chairman of the Hong Kong Management Society for Healthcare Professionals. From 1991 to the year of his retirement in 2012, John performed more than 12,000 neurosurgical operations including 1645 neurointerventional procedures that accelerated the recovery of patients with neurovascular disease. Even after his retirement from frontline clinical duties, the ever-inquisitive John "The Inventor" or "Professor X" as he was lovingly called, remained active in clinical research. In the capacity as an adjunct professor of the Hong Kong University of Science and Technology, John designed novel endovascular devices ranging from radiofrequency thrombectomy to a bioabsorbable endoluminal fibrinolytic patch for large vessel occlusions.[4,5] As a reflection of his ingenuity, John also developed an *ex vivo* human placenta model that imitated cerebral vasculature anatomy.[6] The model offered an opportunity to perform authentic endovascular procedure simulations for neurointerventionalist training and to safely test novel instruments.[6] In recent years, John was also the principal investigator of an ongoing territory-wide big data study that analyzed over 140,000 patients in an attempt to predict the presence of intracranial aneurysms utilizing commonly performed blood investigations.

Emblematic of his interests in computer science and appreciating the importance of data-driven health care, John led the task force responsible for the introduction of the award-winning electronic patient record (ePR) system in 2000 to the Hospital Authority (HA), the largest statutory public health service provider in Hong Kong.[7] The arduous

task of transforming paper-based patient records into digital format changed the face of health-care delivery in the city where its services are now considered one of the most efficient in the world.[8] Currently, the ePR system is one of the largest existing in-house designed medical informatics systems handling 2.1 million transactions per day with a data storage capacity of 4.2 terabytes.[9] In recognition of his exceptional contributions to public health care, John received the acclaimed Hong Kong Ten Outstanding Young Person award in 1991, the Hong Kong Information Technology Achiever award in 1993, and the Outstanding HA Staff award in 2000.

Aside from his clinical duties, John was tirelessly committed to fundraising for the Tung Wah Group of Hospitals, the oldest and largest charitable organisation in Hong Kong. As an accomplished guitarist and pianist, he performed regularly as a rock bandleader at televised events. His talent also extended to oil painting where his portraits of friends and family were well known within his social circles. The innumerable detailed surgical sketches that accompanied his operation records undoubtedly sharpened his artistic skills.

John's attentiveness to teaching has inspired generations of neurosurgeons, neurointerventionalists, radiologists, and nurses to follow his lead. He dedicated his whole professional life to enhancing Hong Kong's public health-care and neurosurgical development, earning deep respect for his operative skills, humility, and stature. Many a late night, one would find him quietly reassuring inpatients and their family members instilling them hope for recovery. John was a giant in the Hong Kong neurosurgical field, and we were fortunate to be associated with him. Although he will be sorely missed, his faith and legacy will forever inspire us.

John is survived by his wife, Grace Au, whom he married in 1993, and their two children, Valerie and Johnathan.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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